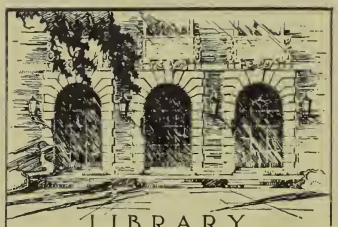

LIBRARY
OF THE
UNIVERSITY
OF ILLINOIS

C

JG2uZhy
1918/19-
1929/30

u Z hy
18/19

New Series, 1918
No. 1

Whole Number 301

THE

JOHNS HOPKINS UNIVERSITY CIRCULAR

SCHOOL OF HYGIENE AND PUBLIC HEALTH

PRELIMINARY ANNOUNCEMENT

THE LIBRARY OF THE UNIVERSITY OF ILLINOIS

Baltimore, Maryland
Published by the University
Issued Monthly from October to July
January, 1918

Entered, October 21, 1903, at Baltimore, Md., as second class matter, under Act of Congress of July 16, 1894

THE

JOHNS HOPKINS UNIVERSITY

SCHOOL OF HYGIENE AND PUBLIC HEALTH

PRELIMINARY ANNOUNCEMENT

BALTIMORE

THE JOHNS HOPKINS PRESS

JANUARY, 1918

FACULTY *

FRANK JOHNSON GOODNOW, LL. D.

President of the University

A. B., Amherst College, 1879, and A. M., 1887; LL. B., Columbia University, 1882; LL. D., Amherst College, 1898, Columbia University, 1904, Harvard University, 1909; Brown University, 1914, Princeton, 1917; Professor of Administrative Law, Columbia University, 1887-1914; Legal Adviser to the Chinese Government, 1913-14.

6 W. Madison St.

WILLIAM HENRY WELCH, M. D., LL. D.

Director and Head of the Department of Bacteriology and Immunology

A. B., Yale University, 1870; M. D., Columbia University (College of Physicians and Surgeons, N. Y.), 1875; M. D. (Hon.), University of Pennsylvania, 1894; LL. D., Western Reserve University, 1894, Yale University, 1896, Harvard University, 1900, University of Toronto, 1903, Columbia University, 1904, Jefferson Medical College, 1907, Princeton University, 1910, Washington University, 1915, and University of Chicago, 1916; Professor of Pathological Anatomy and General Pathology in the Bellevue Hospital Medical College, N. Y., 1879-84; Dean of the Medical Faculty, 1889-98; President of the National Academy of Sciences, 1913-1917; President of the Board of Directors of the Rockefeller Institute for Medical Research; President of the American Association for the Advancement of Science, 1906; President of the American Medical Association, 1910-1911; Member of the American Philosophical Society; Pathologist to the Johns Hopkins Hospital, and Baxley Professor of Pathology, 1884-1917.

807 St. Paul St.

WILLIAM HENRY HOWELL, PH. D., M. D., SC. D., LL. D.

Assistant Director and Head of the Department of Physiology

A. B., Johns Hopkins University, 1881, Fellow, 1882-84, and Ph. D., 1884; LL. D., Trinity College (Conn.), 1901; Sc. D., Yale University, 1911; M. D. (Hon.), University of Michigan, 1890, LL. D., 1912; LL. D., Washington University, 1915; Assistant in Biology, 1884-85, Associate, 1885-88, and Associate Professor, 1888-89; Lecturer and Professor of Physiology and Histology, University of Michigan, 1889-92; Associate Professor of Physiology, Harvard University, 1892-93; Member of the National Academy of Sciences and of the American Philosophical Society; Dean of the Medical Faculty, 1899-1911; Professor of Physiology, Medical School, 1893-1917.

232 W. Lanvale St.

CHARLES JOSEPH TILDEN, S. B.,

Professor of Civil Engineering—in charge of Instruction in Sanitary Engineering

S. B., Harvard University, 1896; Instructor in Civil Engineering, Cornell University, 1903-05; Professor of Engineering Mechanics, University of Michigan, 1911-13; Member, American Society of Civil Engineers.

143 W. Lanvale St.

---

* The names are arranged in order of appointment. No appointments have been made as yet in the departments of Protozoology, Epidemiology, Public Health Administration, and some other subjects. A complete list of the teaching staff will be issued later.

ELMER VERNER McCOLLUM, PH. D.,

Head of the Department of Chemistry

A. B., University of Kansas, 1903, and A. M., 1904; Ph. D., Yale University, 1906; Instructor, Assistant Professor, Associate Professor, and Professor of Agricultural Chemistry, University of Wisconsin, 1907-1917.

Talbot Rd., Windsor Hills.

RAYMOND PEARL, PH. D.,

Head of the Department of Biometry and Vital Statistics

A. B., Dartmouth College, 1899; Ph. D., University of Michigan, 1902; Instructor in Zoology in the University of Michigan, 1902-1906; in the University of Pennsylvania, 1906-1907; Biologist of the Maine Agricultural Experiment Station, 1907-17; Chief of the Statistical Division of the United States Food Administration, 1917-1918; Member of the National Academy of Sciences and of the American Philosophical Society.

United States Food Administration, Washington, D. C.

WILLIAM WEBBER FORD, M. D., D. P. H.

Associate Professor of Bacteriology

A. B., Adelbert College, 1893; M. D., Johns Hopkins University, 1898; Instructor, Associate, and Associate Professor of Bacteriology, 1904-1910; Associate Professor of Bacteriology and Hygiene, 1910-1917; D. P. H., McGill University, 1900 and Fellow in Pathology, 1899-1901; Resident House Officer, Johns Hopkins Hospital, 1898-99; Fellow, Rockefeller Institute for Medical Research, 1901-02; Institute for Infectious Diseases, Berlin, 1901-1902, and Johns Hopkins University, 1902-1903; Hygienic Institute, University of Vienna, 1912-1913; Lecturer on Hygiene and Legal Medicine, Johns Hopkins Medical School, 1917-.

1027 Cathedral St.

CARROLL GIDEON BULL, M. D.,

Associate Professor of Immunology

S. B., Peabody College, 1907; M. D., University of Nashville, 1909; Pathologist to Lincoln Memorial Hospital, 1910-1912; Assistant, Nelson Morris Institute for Medical Research, 1912-1913; Assistant and Associate in Pathology and Bacteriology, The Rockefeller Institute for Medical Research, 1913-1918.

The Rockefeller Institute for Medical Research,
New York, N. Y.

THE

JOHNS HOPKINS

UNIVERSITY CIRCULAR

New Series, 1918, No. 1 JANUARY, 1918 Whole Number, 301

SCHOOL OF HYGIENE AND PUBLIC HEALTH

General Statement

The need of larger and better opportunities in this country for training and investigation in the Science and Art of Hygiene and Public Health has long been recognized. With the rapid advance in our knowledge of the causes and mode of spread of infectious diseases has come a correspondingly increased power of prevention which has greatly stimulated interest in preventive medicine and has strengthened the demands for improved standards of public health organization and administration. Especially urgent is the need for men and women trained to undertake work in this field which already offers attractive careers for those properly qualified, and will offer opportunities in larger measure as the necessity for such training is more widely appreciated. It is a source of great gratification to the Johns Hopkins University that it is able to announce the opening in October, 1918, of a School of Hygiene and Public Health designed to meet the need thus briefly indicated.

In June, 1916, the Rockefeller Foundation of New York notified the President of the Johns Hopkins University that

the Foundation was prepared "to co-operate with the University in the establishment of a School of Hygiene and Public Health for the advancement of knowledge and the training of investigators, teachers, officials and other workers in these fields."

This offer was accepted by the University, and on June 12, 1916, the President of the University made the formal announcement that the Board of Trustees had authorized the establishment of a School of Hygiene and Public Health as part of the University. Dr. William H. Welch was appointed Director and Dr. William H. Howell was named to assist in the work of organization.

The history of the events leading up to this action is in brief as follows: On October 16, 1914, the General Education Board called a conference of leading authorities in public health work to consider the general question of the training of qualified sanitarians and public health officials. At the request of this conference Dr. W. H. Welch and Dr. Wickliffe Rose undertook to prepare a plan for an Institute of Public Health and Hygiene for submission to the General Education Board and the members of the conference. This report was made to the General Education Board on May 27, 1915. Subsequently, on the instruction of the Board, a committee was appointed to determine where such an institution could be located most advantageously. Acting upon the information gathered by this committee the Rockefeller Foundation decided "largely by reason of the facilities, organization and ideals of its Medical School," to establish a School of Hygiene and Public Health at the Johns Hopkins University.

The main objects of the School will be to establish courses for the training of qualified persons for public health work, to promote investigative work in hygiene and preventive medicine and provide opportunities for the training of investigators in these subjects, and to develop adequate means for the dissemination of sound hygienic knowledge. Special and mutual advantages are anticipated from the close relationship

between the School and the International Health Board of the Rockefeller Foundation, particularly in field work and in the opportunities for investigation and training in tropical medicine and the control of special diseases. As outlined at present the work of the School will be organized under the following divisions: a department of bacteriology, serology and immunology; a department of protozoology and medical zoology; a department of epidemiology; a department of statistics; a department of chemical hygiene; a department of physiological hygiene; a general department in charge of field work and administrative methods. Provision will be made for practical work in connection with federal, state and municipal departments of health and for instruction in sanitary engineering, infectious and occupational diseases and vocational, mental and social hygiene.

A suitable lot of land has been purchased at the corner of Monument and Wolfe Streets, immediately adjacent to the grounds of the Medical School and the Johns Hopkins Hospital. Plans have been made for the erection of a building upon this lot to contain the laboratories, library, museum and offices of the School. The School will be opened for instruction in October, 1918, and men and women students will be admitted on the same terms. Owing to war conditions it will not be possible to complete the new laboratories of the School by that date. Arrangements have been made therefore to use temporarily one of the University buildings formerly occupied by the department of Physics. This building is situated on the corner of West Monument Street and Linden Avenue. It has been completely renovated and equipped for the work of the School of Hygiene and Public Health.

Courses and Degrees

I. Course leading to the degree of Doctor of Public Health:

The purpose of this course is to furnish instruction in public health knowledge and methods to those who have a

liberal education and a fundamental training in medicine. The course will consist of specified work throughout two years together with a summer spent in field work in some organized public health service. In the first year the specified work will comprise courses in the following subjects: advanced bacteriology and immunology; the chemical and bacteriological analysis of foods, water and sewage; statistical methods; sanitary and administrative law; nutritional and environmental hygiene; the history of hygiene. In the second year there will be courses in protozoology and medical zoology, epidemiology, occupational diseases, infectious diseases, sanitation and public health organization, sanitary engineering, and social and mental hygiene. It is understood that these requirements may be modified to suit the needs or aptitudes of special students. Graduates in this course should be prepared to serve as public health officials in those important positions in which the health of large communities is involved and in which relations must be maintained both with the medical profession and the general public. The following groups of students will be accepted as candidates for this degree:

a. Graduates of approved medical schools who have had a liberal education as evidenced by a degree in arts or sciences, or its equivalent. These candidates will be required to pursue a two-year's course together with one summer of practical work in an organized public health service.

b. Students who have completed satisfactorily three years of the course in an approved medical school and who have had a liberal education as evidenced by a degree in arts or sciences, or its equivalent. It is hoped that in the case of these students arrangements can be made for a combined course in medicine and in public health of such a character that the student may receive his degree in medicine on the completion of one year's work, and his degree in public health af-

ter an additional or fifth year of work in the School of Hygiene and Public Health together with a summer spent in practical field work.

A combined course of this character has been arranged for students in the Johns Hopkins Medical School. In their fourth year these students may fill all of their elective hours with subjects taken from the curriculum of the School of Hygiene and Public Health.

II. Courses leading to the degree of Doctor of Science in Hygiene:

The underlying object in the arrangement of these courses is the training of specialists in the various departments of public health work. The field is large and varied. In addition to general administrative officials and those immediately occupied with the protection of the community from epidemics and insanitary conditions, it is obvious that specially trained individuals are needed in such matters as school hygiene, occupational hygiene, statistical investigations, nutritional problems, etc., both for the purpose of adding to knowledge and for giving special services.

For work of this character previous training in the physical and biological sciences is more essential than acquaintance with clinical methods and it is proposed therefore in planning these courses to base them upon a liberal education and adequate preliminary training in physics, chemistry, biology and the medical sciences. The courses as given in the School will be organized for a period of two years, the equivalent of half of one academic year (15 hours a week) being occupied with specified work of a basic character and the remainder of the time, including an intervening summer, being allotted to advanced work in some special department. This latter part of the work must include or consist of a special investigation of some problem the results of which are to be presented in the form of a dissertation.

To be accepted as a candidate for this degree the following requirements must be fulfilled:

a. A degree in arts or sciences or its equivalent as evidence of a liberal education.

b. Certificates of the satisfactory completion of the first two years in an approved medical school. The term approved medical school is understood to mean one in which adequate courses in physics, chemistry and biology are required for entrance.

c. In place of (b) separate certificates will be accepted from colleges in good standing of adequate courses in physics, chemistry, biology, anatomy, gross and microscopic, physiology, physiological chemistry, pathology and bacteriology, whether or not the candidate has been registered as a medical student.

After acceptance as candidates the students will be assigned for advice and guidance to the head of the department in which they will specialize. Rules governing the presentation and publication of dissertations, and the oral and written examinations of candidates will be published in the catalogue of the School of Hygiene and Public Health to be issued subsequently.

III. Course leading to the degree of Bachelor of Science in Hygiene:

It is evident that if public health work in this country develops along the lines followed at present there will soon be established in every community an organized service, including laboratory facilities, for the control of the health affairs of that community. For such services trained workers should be provided who can undertake the necessary routine work connected with the chemical and bacteriological examination of water, sewage, foods, excretions, blood; the preparation of bacteriological and serological material and sanitary inspections. It is proposed to establish courses for the training of such workers leading to the degree of Bachelor of Science in Hygiene. These courses will require two years of combined

work in the Medical School and the School of Hygiene and Public Health and will be based upon a liberal education and an adequate knowledge of physics, chemistry and biology such as can be obtained in two years of a college course. The first year's work will consist of courses in physiology, bacteriology, anatomy and histology and the chemical analysis of foods, water and sewage. The second year's work will consist of courses in advanced bacteriology, immunology, medical zoology, statistics, nutritional and personal hygiene and sanitary engineering. The requirements for matriculation in these courses will be as follows:

a. Certificate of the completion of at least two years of work in an approved college.
b. Certificates of adequate courses in biology, physics and chemistry, including organic chemistry.

By an adequate course is meant in physics one year of college work covering approximately 100 hours of laboratory and 100 hours of class work; in biology one year of college work covering approximately 150 hours of laboratory and 100 hours of class work; in chemistry one to two years of college work covering approximately 250 hours of laboratory and 120 hours of class work.

Special Students

An opportunity to use the facilities of the School will be granted to the following groups of special students not registered as candidates for a degree:

1. Public health officers who may wish to take one or more lectures or laboratory courses, or engage in the study of some special problem.
2. Other qualified persons who may wish to attend special courses or undertake research work and whose qualifications receive the formal approval of the faculty of the School.

Courses for Social Workers, Nurses and Teachers

It is the intention of the School to organize a series of courses which will be designed especially for the instruction of health nurses, social workers and teachers. These courses will be of a practical character and those who register for them and pass the examinations will be granted suitable certificates. The relations of public and personal hygiene and of individual sanitation to the welfare of society will receive especial consideration. The details concerning these courses will be announced later.

Public Lectures

In connection with the class courses it is expected that a series of lectures, open to the public, will be arranged annually. The object of these lectures will be to bring before interested persons the general facts and points of view of modern hygiene, with the hope that in this way the School may serve as a center for the distribution of useful knowledge in all matters pertaining to sanitation and preventive medicine.

Scholarships

A certain number of scholarships carrying free tuition will be awarded annually by the Trustees of the University upon the recommendation of the faculty. These scholarships will be awarded for one year, but may be renewed for a second year at the discretion of the faculty. Applications may be made to the Director of the School.

Fellowships

Six research fellowships carrying each a stipend of $1,000, and exemption from all charges for tuition will be awarded annually by the Trustees of the University upon the recommendation of the faculty. The conditions upon which these fellowships will be awarded are as follows:

1. The applicant must have received his doctor's degree in medicine, science, philosophy or public health, or furnish evidence of experience and meritorious service in scientific work.
2. The holder of a fellowship must give his time primarily to investigative work, approved by some member of the staff of the School, and must be in residence during the academic year, unless permission is granted to him by the faculty to carry on his work elsewhere.
3. The application must be made prior to June 1st, in writing, addressed to the Director of the School of Hygiene and Public Health.

Announcement of Courses

The following courses will be given during the session of 1918-19:

Sanitary and Administrative Law. President F. J. Goodnow. Three hours weekly during the first semester. This course will treat of the origin and development of Sanitary Law and of some of the more important problems which its administration presents.

The History of Hygiene and Epidemiology. Dr. W. H. Welch. One hour weekly throughout the year. The lectures will consider the development of Hygiene and Epidemiology, especially from the historical point of view, and the lines of future growth.

Advanced Bacteriology. This course will be given under the direction of Dr. W. W. Ford, Associate Professor of Bacteriology. It will consist of nine hours of laboratory work and three hours of conferences during the first semester. The course is designed especially for the training of public health officers in advanced bacteriological technique. The students will be instructed in the meth-

ods of recognition and isolation of the most important microbic agents of disease, and in the bacteriological examination of water, sewage, milk, and foods.

Immunology. This course will be given under the direction of Dr. C. G. Bull, Associate Professor of Immunology. It will consist of nine hours of laboratory work and three hours of lectures or conferences during the second semester. Training will be given in serological reactions, in the preparation of microbic vaccines and immune sera and in the methods of their standardization.

Introduction to Vital Statistics. This course will be given under the direction of Dr. Raymond Pearl, Head of the Department of Biometry and Vital Statistics. Two lectures or conferences and six hours of laboratory work and reading weekly during the first semester. The course will be designed to acquaint the student, on the one hand, with modern methods of collecting, tabulating, adjusting, and drawing sound conclusions from statistical data regarding human life, and, on the other hand, with the chief results which have accrued from the study of vital statistics in the past. The course will involve a considerable amount of laboratory work, in which the student will gain first-hand familiarity with statistical data and methods in the fields of hygiene and public health. Special emphasis will be placed upon modern biometric and graphic methods.

Advanced Statistical Theory. Given under the direction of Dr. Pearl during the second semester. This course is designed for those expecting to specialize in some phase of statistical work, and will be opened only to a limited number of properly qualified students. It will vary in content in different years involving, at different times, the discussion of such subjects as the theory of probability, curve fitting, the higher theory of correlation, actuarial mathematics, possible new applications

of statistical methods in the fields of medicine and hygiene, etc.

Chemical Methods Applied to Hygiene. Under the direction of Dr. E. V. McCollum, Head of the Department of Chemistry. The course will consist of nine hours of laboratory work weekly during the first semester. It will include a study of the composition of the more important foods, the changes undergone in cooking, preserving, storing, etc., and the nature of the substances used in adulterations. Practice will be given in the methods of water analysis, chemical treatment of waters, filtration, etc.

Animal Nutrition. Dr. E. V. McCollum. Three lectures or conferences weekly during the second semester. In this course students will be given assigned readings upon which written or oral reports will be required. The special dietary properties of the natural food products will be discussed and the best methods of promoting nutrition through a proper combination of foods.

Physiological Hygiene. Under the direction of Dr. W. H. Howell, Head of the Department of Physiology. The course will consist of three hours of lectures or conferences and six hours of laboratory work weekly during the second semester. The lectures will take up in series such topics as air and ventilation, heat regulation, the physiological action of light, and exercise and fatigue. In the laboratory work practical exercises will be given in the physical and chemical examination of air, in photometric and visual measurements and in the methods of studying muscular and nervous activity.

Special Lectures. Arrangements have been made for a series of lectures during the session by distinguished teachers, investigators, and administrators in the field of preventive medicine and sanitation. While these lectures

are meant primarily for students in the School of Hygiene and Public Health, they will be open to all interested persons and especially to members of the medical profession. Among those who have signified their willingness to give one or more lectures in this course are the following: Dr. Hermann Biggs, Dr. Simon Flexner, Dr. Victor G. Heiser, Dr. William H. Park, Dr. Wickliffe Rose, Dr. Milton J. Rosenau, Dr. William T. Sedgwick, Dr. George C. Whipple. Their subjects will be announced subsequently.

Tuition

The charge for tuition in the courses leading to a degree will be $250 per annum, payable at the office of the Registrar in semi-annual instalments, October 1st and February 1st. For students taking special courses the charge for each course will be arranged on application.

For further information address the Director of the School of Hygiene and Public Health, care of the Johns Hopkins Medical School, Washington and Monument Streets, Baltimore, Md.

#6 mag

Series, 1919
No. 1

Whole Number 311

UNIVERSITY OF ILLINOIS LIBRARY

JUN 21 1920

THE

JOHNS HOPKINS UNIVERSITY CIRCULAR

SCHOOL OF HYGIENE AND PUBLIC HEALTH

CATALOGUE AND ANNOUNCEMENT FOR 1919-1920

BALTIMORE, MARYLAND
PUBLISHED BY THE UNIVERSITY
ISSUED MONTHLY FROM OCTOBER TO JULY
JANUARY, 1919

Entered, October 21, 1903, at Baltimore, Md., as second class matter, under Act of Congress of July 16, 1894

Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized on July 3, 1918

THE

JOHNS HOPKINS UNIVERSITY

SCHOOL OF HYGIENE AND PUBLIC HEALTH

CATALOGUE AND ANNOUNCEMENT
FOR 1919-1920

BALTIMORE
THE JOHNS HOPKINS PRESS
1919

CONTENTS

PAGE

Calendar 5

Trustees of the Johns Hopkins University 6

Treasurer of the University 6

Faculty 7

Fellows 11

Students 12

Advisory Board of the Faculty 14

Executive Committee 14

Library Committee 14

Other Officers 14

General Statement and Requirements for Admission:

- General Statement 17
- Courses and Degrees:
  - Doctor of Public Health 19
  - Doctor of Science in Hygiene 20
  - Bachelor of Science in Hygiene 22
  - Certificate in Public Health 23
  - Social Workers, Nurses and Teachers 24
  - Special students 24

Public and Special Lectures 24

Scholarships 27

Fellowships 27

Registration and Calendar 28

Tuition 28

Departments of Instruction and Announcements of Courses:

- Bacteriology 31
- Immunology 32
- Sanitary Engineering 33
- Chemical Hygiene 34
- Protozoology and Medical Zoology 35
- Physiological Hygiene 37
- Biometry and Vital Statistics 39

Schedules of Courses for the Session of 1919-1920:

- Doctor of Public Health 43
- Bachelor of Science in Hygiene 45

Alphabetical Index of Names 49

Index 51

1919

JANUARY						
S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	..
..	..	..	..	..	..	..

FEBRUARY						
S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	..
..	..	..	..	..	..	..

MARCH						
S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	..	..	..	..	..

APRIL						
S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	..	..	..
..	..	..	..	..	..	..

MAY						
S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
..	..	..	..	..	..	..

JUNE						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	..	..	..	..	..
..	..	..	..	..	..	..

JULY						
S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	..	..
..	..	..	..	..	..	..

AUGUST						
S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	..	..	..	..	..	..

SEPTEMBER						
S	M	T	W	T	F	S
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	..	..	..	..
..	..	..	..	..	..	..

OCTOBER						
S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	..
..	..	..	..	..	..	..

NOVEMBER						
S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	..	..	..	..	..	..

DECEMBER						
S	M	T	W	T	F	S
.	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	..	..	..
..	..	..	..	..	..	..

1920

JANUARY						
S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
..	..	..	..	..	..	..

FEBRUARY						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	..	..	..	..	..	..
..	..	..	..	..	..	..

MARCH						
S	M	T	W	T	F	S
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	..	..	..
..	..	..	..	..	..	..

APRIL						
S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	..
..	..	..	..	..	..	..

MAY						
S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	..	..	..	..	..

JUNE						
S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	..	..	..
..	..	..	..	..	..	..

JULY						
S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
..	..	..	..	..	..	..

AUGUST						
S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	..	..	..	..
..	..	..	..	..	..	..

SEPTEMBER						
S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	..	..
..	..	..	..	..	..	..

OCTOBER						
S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	..	..	..	..	..	..

NOVEMBER						
S	M	T	W	T	F	S
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	..	..	..	..
..	..	..	..	..	..	..

DECEMBER						
S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	..
..	..	..	..	..	..	..

CALENDAR, 1919-1920

1919

January 3, Friday—Instruction resumed.

February 22, Saturday—Commemoration Day. Public exercises at 11 a. m.; all classes suspended.

April 17, Thursday—Easter Recess begins (no classes).

April 24, Thursday—Instruction resumed.

June 24, Tuesday—Conferring of Degrees (4 p. m.).

September 30, Tuesday—Instruction begins.

November 27, Thursday—Thanksgiving Day. All classes suspended.

December 23, Tuesday—Christmas Recess begins (p. m.).

1920

January 5, Monday—Instruction resumed.

February 23, Monday—Commemoration Day. Public exercises at 11 a. m.; all classes suspended.

April 1, Thursday—Easter recess begins (no classes).

April 8, Thursday—Instruction resumed.

June 15, Tuesday—Conferring of Degrees (4 p. m.).

BOARD OF TRUSTEES

R. Brent Keyser, *President*
Eugene Levering
Theodore Marburg
Blanchard Randall
Henry D. Harlan, *Secretary*
Miles White, Jr.
B. Howell Griswold, Jr.
John Glenn, Jr.
Frederick W. Wood
Daniel Willard
Newton D. Baker

The President of the University, *ex officio*

W. Graham Boyce, *Treasurer*

FACULTY

FRANK JOHNSON GOODNOW, LL. D.

President of the University

A. B., Amherst College, 1879, and A. M., 1887; LL. B., Columbia University, 1882; LL. D., Amherst College, 1897, Columbia University, 1904, Harvard University, 1909; Brown University, 1914, Princeton University, 1917; Professor of Administrative Law, Columbia University, 1887-1914.

6 W. Madison St.

WILLIAM HENRY WELCH, M. D., LL. D.

Director and Head of the Department of Bacteriology and Immunology

A. B., Yale University, 1870; M. D., Columbia University (College of Physicians and Surgeons, N. Y.), 1875; M. D., (Hon.), University of Pennsylvania, 1894; LL. D., Western Reserve University, 1894, Yale University, 1896, Harvard University, 1900, University of Toronto, 1903, Columbia University, 1904, Jefferson Medical College, 1907, Princeton University, 1910, Washington University, 1915, and University of Chicago, 1916; Professor of Pathological Anatomy and General Pathology in the Bellevue Hospital Medical College, N. Y., 1879-84; Dean of the Medical Faculty, 1889-98; President of the National Academy of Sciences, 1913-1917; President of the Board of Directors of the Rockefeller Institute for Medical Research; President of the American Association for the Advancement of Science, 1906; President of the American Medical Association, 1910-1911; Member of the American Philosophical Society; Pathologist to the Johns Hopkins Hospital, and Baxley Professor of Pathology, 1884-1917.

807 St. Paul St.

WILLIAM HENRY HOWELL, Ph. D., M. D., Sc. D., LL. D.

Assistant Director and Professor of Physiology

A. B., Johns Hopkins University, 1881, Fellow, 1882-84, and Ph. D., 1884; LL. D., Trinity College (Conn.), 1901; Sc. D., Yale University, 1911; M. D. (Hon.), University of Michigan, 1890, LL. D., 1912; LL. D., Washington University, 1915; Associate and Associate Professor in Biology, Johns Hopkins University, 1885-1889; Lecturer and Professor of Physiology and Histology, University of Michigan, 1889-92; Associate Professor of Physiology, Harvard University, 1892-93; Member of the National Academy of Sciences and of the American Philosophical Society; Dean of the Medical Faculty, 1899-1911; Professor of Physiology, Medical School, 1893-1919.

232 W. Lanvale St.

CHARLES JOSEPH TILDEN, S. B.

Professor of Civil Engineering—in charge of Instruction in Sanitary Engineering

S. B., Harvard University, 1896; Instructor in Civil Engineering, Cornell University, 1903-05; Professor of Engineering Mechanics, University of Michigan, 1911-13; Member, American Society of Civil Engineers.

143 W. Lanvale St.

ELMER VERNER McCOLLUM, Ph. D.

Professor of Bio-Chemistry

A. B., University of Kansas, 1903, and A. M., 1904; Ph. D., Yale University, 1906; Instructor, Assistant Professor, Associate Professor, and Professor of Agricultural Chemistry, University of Wisconsin, 1907-1917.

Talbot Rd., Windsor Hills.

RAYMOND PEARL, PH. D.

Professor of Biometry and Vital Statistics

A. B., Dartmouth College, 1899; Ph. D., University of Michigan, 1902, Instructor in Zoology, 1902-1906; in the University of Pennsylvania, 1906-1907; Biologist of the Maine Agricultural Experiment Station, 1907-17; Chief of the Statistical Division of the United States Food Administration, 1917-1919; Member of the National Academy of Sciences and of the American Philosophical Society; Associate Editor of Genetics, of the Journal of Experimental Zoology, and of the Publications of the American Statistical Association; Chairman of the Editorial Board of the Proceedings of the National Academy of Sciences.

401 Hawthorne Rd., Roland Park.

ASSOCIATE PROFESSORS

WILLIAM WEBBER FORD, M. D., D. P. H.

Associate Professor of Bacteriology

A. B., Adelbert College, 1893; M. D., Johns Hopkins University, 1898, Instructor, Associate, and Associate Professor of Bacteriology, 1904-1910, Associate Professor of Bacteriology and Hygiene, 1910-1917; D. P. H., McGill University, 1900, and Fellow in Pathology, 1899-1901; Resident House Officer, Johns Hopkins Hospital, 1898-99; Fellow, Rockefeller Institute for Medical Research, 1901-02; Institute for Infectious Diseases, Berlin, 1901-1902, and Johns Hopkins University, 1902-1903; Hygienic Institute, University of Vienna, 1912-1913; Lecturer on Hygiene and Legal Medicine, Johns Hopkins Medical School, 1917-.

1124 N. Calvert St.

CARROLL GIDEON BULL, M. D.

Associate Professor of Immunology

S. B., Peabody College, 1907; M. D., University of Nashville, 1909; Pathologist to Lincoln Memorial Hospital, 1910-1912; Assistant, Nelson Morris Institute for Medical Research, 1912-1913; Assistant and Associate in Pathology and Bacteriology, The Rockefeller Institute for Medical Research, 1913-1917; Major, Medical Corps, U. S. A., 1917-1918.

214 E. 20th St.

ASSOCIATES

VICTOR EMANUEL NELSON, S. M.

Associate in Bio-Chemistry

S. B., and S. M., University of Wisconsin, 1912 and 1914, and Assistant and Instructor in Agricultural Chemistry, 1912-1917.

3410 Beech Ave.

GEORGE HENRY ROBINSON, PH. D.

Associate in Bacteriology

A. B., Bates College, 1911; A. M. and Ph. D., Brown University, 1912 and 1914; Research Laboratory, H. K. Mulford Company, 1914-1918.

3818 Barrington Rd.

REYNOLD ALBRECHT SPAETH, PH. D.

Associate in Physiology

S. B., Haverford College, 1909; A. M. and Ph. D., Harvard University, 1910 and 1913; Sheldon Fellow, Physiological Institute, Kiel, 1913-1914; Instructor in Biology, Clark College, 1914-1915; Instructor in Biology, Yale College, 1915-1918.

212 Longwood Rd., Roland Park.

JOHN RICE MINER, A. B.

Associate in Biometry and Vital Statistics

A. B., University of Michigan, 1913; Computer, Maine Agricultural Experiment Station, 1913-1917; Biometrician, Statistical Division, U. S. Food Administration, 1917-1918.

2406 Callow Ave.

LOWELL JACOB REED, PH. D.

Associate in Biometry and Vital Statistics

S. B., and S. M., University of Maine, 1907 and 1912; Ph. D., University of Pennsylvania, 1916; Assistant Professor of Mathematics, University of Maine, 1916-1917; Director of Bureau of Tabulation and Statistics, War Trade Board, Washington, 1917-1918.

Riderwood, Md.

ROBERT WILLIAM HEGNER, PH. D.

Associate in Protozoölogy

S. B and S. M., University of Chicago, 1903 and 1904; Ph. D., University of Wisconsin, 1908; Instructor, University of Michigan, 1908-1910, and Assistant Professor, 1910-1917; Johnston Scholar, Johns Hopkins University, 1917-1918.

712 Linwood Ave., Tuxedo Park.

WILLIAM WALTER CORT, PH. D.

Associate in Helminthology

A. B., Colorado College, 1909; A. M. and Ph. D., University of Illinois, 1911 and 1914; Professor of Biology, Macalester College, 1914-1917; Assistant Professor of Parasitology, University of California, 1917-1919; Consulting Helminthologist, State Board of Health, California, 1918-1919.

312 W. Monument St.

INSTRUCTORS

HELEN TRACY PARSONS, S. M.

Instructor in Bio-Chemistry

S. B., Kansas State Agricultural College, 1911; S. M., University of Wisconsin, 1916, Assistant and Instructor in Home Economics, 1913-1917.

1731 Fairmount Ave.

FLORENCE POWDERMAKER, S. B.

Instructor in Bio-Chemistry

S. B., Pennsylvania State College, 1915; Chemist, Baltimore City Health Department, 1915-1917; U. S. Department of Agriculture, 1917-1918; U. S. Food Administration, 1918.

810 Whitelock St.

SYLVIA LOUISE PARKER, A. B.

Instructor in Biometry and Vital Statistics

A. B., Mount Holyoke College, 1916, Laboratory Assistant in Zoölogy, 1916-1917; Assistant Biologist, Maine Agricultural Experiment Station, 1917-1918.

157 W. Lanvale St.

PAUL EATON, M. D.

Instructor in Bacteriology

A. B., Allegheny College, 1899; M. D., University of Pittsburgh, 1903.

2100 Callow Ave.

MARTHA KOEHNE, A. M.

Instructor in Bio-Chemistry

A. B. and A. M., Ohio State University, 1908 and 1910; Chemist, State Department of Health, Columbus, Ohio, 1911-1918.

2907 Presstman St.

JANET HOWELL CLARK, PH. D.

Instructor in Physiology

A. B., Bryn Mawr College, 1910; A. M. and Ph. D., Johns Hopkins University, 1912 and 1913; Holder of the Helen Schaeffer Huff Fellowship, Bryn Mawr College, 1912-1914, Instructor in Physics, 1914-1915; Holder of the Sarah Berliner Fellowship, 1915-1916; Instructor at Smith College, 1916-1917.

232 W. Lanvale St.

NINA SIMMONDS, S. B.

Instructor in Bio-Chemistry

S. B., University of Wisconsin, 1915, Assistant in Agricultural Chemistry, 1915-1917; Assistant in Bio-Chemistry, Johns Hopkins University, 1917-1918.

511 N. Wolfe St.

PERCY DAVOL MEADER, PH. D.

Instructor in Bacteriology

Ph. B., Sc. M. and Ph. D., Brown University, 1914, 1916 and 1918; Assistant Bacteriologist, Providence Health Department, 1916-1918.

813 N. Howard St.

RUTH STOCKING LYNCH, PH. D.

Instructor in Protozoölogy

A. B., Goucher, 1910; Fellow in Biology, Bryn Mawr College, 1911-1912; University Fellow, Johns Hopkins University, 1912-1913; Alice Freeman Palmer Fellow of Wellesley College, 1913-1914; Ph. D., Johns Hopkins University, 1915; Professor of Biology, Agnes Scott College, 1915-1916; Acting Professor of Biology, Wells, College, 1916-1917; Assistant Professor of Biology, Carnegie Institute of Technology, 1917-1918.

211 Goodwood Gardens, Roland Park.

WILLIAM HAY TALIAFERRO, PH. D.

Instructor in Protozoölogy

S. B., University of Virginia, 1915; Assistant in Biology, Johns Hopkins University, 1915-1917, Adam T. Bruce Fellow, 1917-1918, Ph. D., 1918; Lieutenant, Medical Research Division, Chemical Warfare Service, Yale University 1918; Johnston Scholar, Johns Hopkins University, 1919.

2932 St. Paul St.

ASSISTANTS

LEWIS PADGETT

Assistant in Biometry and Vital Statistics

Graduate Columbia School of Drafting, 1912; Topographical Draftsman, U. S. Forest Service, 1913-1915; Assistant Chief Draftsman, U. S. Bureau of Mines, 1915-1917; Chief Draftsman, U. S. Food Administration, 1917-1918.

312 W. Monument St.

IDA WILLIAMS PRITCHETT, A. B.

Assistant in Immunology

A. B., Bryn Mawr College, 1914; Technical Assistant, Rockefeller Institute for Medical Research, 1915-1917, and Fellow in Pathology and Bacteriology, 1917-1918.

1109 St. Paul St.

AMY GEORGINA PHILLIPS
Assistant in Biometry and Vital Statistics
1435 Mt. Royal Ave.

FELLOWS

NATHAN BERMAN. Port Chester, N. Y. 1005 *St. Paul St.*
Ph. B., S. M., and Ph. D., Yale University, 1914, 1916 and 1917. *Bacteriology.*

ROSCOE RAYMOND HYDE. Muncie, Ind. 3910 *Groveland Ave.*
A. B., Indiana State Normal School, 1908; A. B. and A. M., Indiana University, 1909; Ph. D., Columbia University, 1915. *Immunology.*

LINDA BARTELS LANGE. New York, N. Y. 804 *N. Broadway.*
A. B., Bryn Mawr College, 1903; M. D., Johns Hopkins University, 1911. *Bacteriology.*

RAYMOND CLEVELAND SALTER. Madison, Wis. 312 *W. Monument St.*
S. B., University of Wisconsin, 1915. *Bacteriology.*

GEORGE ADDISON TALBERT. Ripon, Wis. 614 *N. Howard St.*
S. B., Ohio Wesleyan University, 1888; Graduate Student, Johns Hopkins University, 1888-1889; S. M., Ohio Wesleyan University, 1892; Graduate Student, University of Berlin, 1898-1899. *Physiology.*

WALTER EUGENE THRUN. Ann Arbor, Mich. 1528 *Hollins St.*
A. B. and S. M., University of Michigan, 1912 and 1914; Ph. D., University of Missouri, 1917. *Bio-Chemistry.*

STUDENTS, 1918-1919

CANDIDATES FOR THE DEGREE OF DOCTOR OF PUBLIC HEALTH

JOHN ATKINSON FERRELL. New York, N. Y. *The Altamont.*
S. B. and M. D., University of North Carolina, 1902 and 1907.

GERALDO HORACIO DE PAULA SOUZA. São Paulo, Brazil.
Pharm. D., School of Pharmacy, S o Paulo, 1908; M. D., Rio Janeiro, 1913.
1318 *McCulloh St.*

FRANCISCO BORGES VIEIRA. São Paulo, Brazil. 1318 *McCulloh St.*
B. Sc. e Lett., Gymnasium of S o Paulo, 1911; M. D., Rio Janeiro, 1917.

GEORGE HUNTINGTON WILLIAMS. Baltimore, Md. 803 *Cathedral St.*
A. B., Harvard University, 1915; Fourth Year Medical Student, Johns Hopkins University.

CANDIDATE FOR THE DEGREE OF DOCTOR OF SCIENCE IN HYGIENE

SAMUEL PITLIK. Worcester, Mass. 2206 *E. Baltimore St.*
A. B, Clark College, 1917; A. M., University of Chicago, 1918. *Statistics.*

CANDIDATES FOR THE DEGREE OF BACHELOR OF SCIENCE IN HYGIENE

EDITH MARGARET JANE BARRETT. Memphis, Tenn. 4025 *Belle Ave.*
Student in Tulane University, 1915-1917, and Louisiana State Medical College, 1917-1918.

GLADYS NEWMAN. Buffalo, N. Y. 4025 *Belle Ave.*
A. B., Oberlin College, 1917.

SPECIAL STUDENTS

RUDOLPH JOSEPH BABOR. New York, N. Y.
S. B., Cornell University, 1918; Sanitary Corps, U. S. A.; *Nutrition.*

HARRY EDWARD BROWN. Detroit, Mich. 1414 *McCulloh St.*
A. B., University of Michigan, 1914; *Bacteriology and Physiology.*

GLADYS ADELINE GODDARD. New Salem, Mass. 13 *E. Read St.*
Student Simmons College, 1910-1911; University of Zurich, 1911-1912; University of Geneva, 1912; Johns Hopkins University, 1917-1918; *Bio-Chemistry.*

WILLIAM PICKARD JACOCKS. Elizabeth City, N. C. *The Altamont.*
A. B. and A. M., University of North Carolina, 1904 and 1905; M. D., University of Pennsylvania, 1911; *Physiology, Protozoölogy and Statistics.*

MARIE LOUISE KOCH. Baltimore, Md. 2524 *Maryland Ave.*
Statistics.

HERTHA LICHTENSTEIN. Winona, Minn. 1523 *McCulloh St.*
Bacteriology.

SCHELLER ALEXANDER MILLER. West Point, Miss.
S. B., Cornell University, 1911; Sanitary Corps, U. S. A.; *Nutrition.*

FLORENCE KING PAYNE. Port of Spain, Trinidad. 1305 *Madison Av.*
M. D., Syracuse University, 1909; *Bacteriology, Bio-Chemistry and Protozoölogy.*

RALPH EVANS STANTON. Providence, R. I.
Student in Brown University, 1915-1918; Sanitary Corps, U. S. A.; *Nutrition.*

ADVISORY BOARD OF THE FACULTY

FRANK J. GOODNOW, *President*

CARROLL G. BULL	ELMER V. MCCOLLUM
WILLIAM W. FORD	RAYMOND PEARL
ROBERT W. HEGNER	CHARLES J. TILDEN
WILLIAM H. HOWELL	WILLIAM H. WELCH
Assistant Director	*Director*

By resolution of the Board of Trustees this Board is "instructed to report to the Trustees from time to time their suggestions and to prepare and carry forward the proper arrangements for the instruction and graduation of students in the School."

EXECUTIVE COMMITTEE

THE PRESIDENT OF THE UNIVERSITY

THE DIRECTOR — THE ASSISTANT DIRECTOR

LIBRARY COMMITTEE

ELMER V. MCCOLLUM, *Chairman*	GEORGE H. ROBINSON
LOWELL J. REED	REYNOLD A. SPAETH
	ELISABETH S. THIES

THE LIBRARIAN OF THE UNIVERSITY, *ex officio*

OTHER OFFICERS

MARY LOUISE DURHAM, *Secretary*	1700 *St. Paul St.*
ELISABETH S. THIES, *Librarian*	2122 *Chelsea Ave.*

GENERAL STATEMENT AND REQUIREMENTS FOR ADMISSION

SCHOOL OF HYGIENE AND PUBLIC HEALTH

GENERAL STATEMENT

The need of larger and better opportunities in this country for training and investigation in the science and art of Hygiene and Public Health has long been recognized. With the rapid advance in our knowledge of the causes and mode of spread of infectious diseases has come a correspondingly increased power of prevention which has greatly stimulated interest in preventive medicine and has strengthened the demands for improved standards of public health organization and administration. Especially urgent is the need for men and women trained to undertake work in this field which already offers attractive careers for those properly qualified, and will offer opportunities in larger measure as the necessity for such training is more widely appreciated. It was a source of great gratification to the Johns Hopkins University to be enabled to open in October, 1918, a School of Hygiene and Public Health designed to meet the need thus briefly indicated.

In June, 1916, the Rockefeller Foundation of New York notified the President of the Johns Hopkins University that the Foundation was prepared "to co-operate with the University in the establishment of a School of Hygiene and Public Health for the advancement of knowledge and the training of investigators, teachers, officials and other workers in these fields."

This offer was accepted by the University, and on June 12, 1916, the President of the University made the formal announcement that the Board of Trustees had authorized the establishment of a School of Hygiene and Public Health as part of the University. Dr. William H. Welch was appointed Director and Dr. William H. Howell was named to assist in the work of organization.

The history of the events leading up to this action is in brief as follows: On October 16, 1914, the General Education Board called a conference of leading authorities in public health work to consider the general question of the training of qualified sanitarians and public health officials. At the request of this conference Dr. W. H. Welch and Dr. Wickliffe Rose undertook to prepare a plan for an Institute of Public Health and Hygiene for submission to the General Education Board and the members of the conference. This report was made to the General Education Board on May 27, 1915. Subsequently, on the instruction of the Board, a committee was appointed to determine where such an institution could be located most advantageously. Acting upon the information gathered by this committee the Rockefeller Foundation decided "largely by reason of the facilities, organization and ideals of its Medical School," to establish a School of Hygiene and Public Health at the Johns Hopkins University.

The main objects of the School are to establish courses for the training of qualified persons for public health work, to promote investigative work in hygiene and preventive medicine and provide opportunities for the training of investigators in these subjects, and to develop adequate means for the dissemination of sound hygienic knowledge. Special and mutual advantages arise from the close relationship between the School and the International Health Board of the Rockefeller Foundation, particularly in field work and in the opportunities for investigation and training in tropical medicine and the control of special diseases. As outlined at present the work of the School is organized under the following divisions: a department of bacteriology, serology and immunology; a department of protozoölogy and medical zoölogy; a department of epidemiology; a department of biometry and vital statistics; a department of chemical hygiene; a department of physiological hygiene; a general department in charge of field work and administrative methods. Provision is made for practical work in connection

with federal, state and municipal departments of health and for instruction in sanitary engineering, infectious and occupational diseases and vocational, mental and social hygiene. Men and women are admitted on the same terms.

A suitable lot of land has been purchased at the corner of Monument and Wolfe streets, immediately adjacent to the grounds of the Medical School and the Johns Hopkins Hospital. Plans have been made for the erection of a building upon this lot to contain the laboratories, library, museum, and offices of the School. Pending the erection of this building the School has been established in a large laboratory, 310-312 West Monument street, formerly occupied by the Physical Department of the Johns Hopkins University. This building has been completely renovated and equipped for its new purposes. Instruction began October 1, 1918.

COURSES AND DEGREES

I. Course leading to the degree of Doctor of Public Health (Dr. P. H.):

The purpose of this course is to furnish instruction in public health knowledge and methods to those who have a liberal education and a fundamental training in medicine. The course will consist of specified work throughout two years together with a summer spent in field work in some organized public health service. The specified work comprises courses in the following subjects: advanced bacteriology and immunology; the chemical and bacteriological analysis of foods, water and sewage; statistical methods; sanitary and administrative law; nutritional and environmental hygiene; the history of hygiene; protozoölogy and medical zoölogy; epidemiology; occupational diseases; infectious diseases; sanitation and public health organization; sanitary engineering, and social and mental hygiene. It is understood that these requirements may be modified to suit the needs or aptitudes of special students. An essay based upon individual study

of some problem or subject in hygiene is to be submitted before receiving the degree. Graduates in this course should be prepared to serve as public health officials in those important positions in which the health of large communities is involved and in which relations must be maintained both with the medical profession and the general public. The following groups of students will be accepted as candidates for this degree:

a. Graduates of approved medical schools who have had a liberal education as evidenced by a degree in arts or science, or its equivalent. These candidates will be required to pursue a two-years' course together with one summer of practical work in an organized public health service.

b. Students who have completed satisfactorily three years of the course in an approved medical school and who have had a liberal education as evidenced by a degree in arts or science, or its equivalent. Arrangements have been made with the Johns Hopkins Medical School whereby students in this school can pursue a combined course in medicine and in public health of such a character that a student may receive his degree in medicine on the completion of four years' work, and his degree in public health after an additional or fifth year of work in the School of Hygiene and Public Health together with a summer spent in practical field work. In their fourth year these students may fill all of their elective hours with subjects taken from the curriculum of the School of Hygiene and Public Health.

II. Courses leading to the degree of Doctor of Science in Hygiene:

The underlying object in the arrangement of these courses is to train specialists in the various departments of public health work, and to afford opportunity for those not gradu-

ated in medicine to undertake public health work. The field is large and varied. In addition to general administrative officials and those immediately occupied with the protection of the community from epidemics and insanitary conditions, it is obvious that specially trained individuals are needed in such matters as school hygiene, occupational hygiene, statistical investigations, nutritional problems, etc., both for the purpose of adding to knowledge and for giving special services.

For work of this character previous training in the physical and biological sciences is more essential than acquaintance with clinical methods, and it is proposed, therefore, in planning these courses, to base them upon a liberal education, and an adequate training in physics, chemistry, biology, and the medical sciences. After matriculation in the School each candidate will be expected to absolve certain courses of a basic character, but for the most part his time will be devoted to advanced work. This latter part of the work must include a special investigation of some problem the results of which are to be presented in the form of a dissertation. In view of the special requirements and the time implied in completing successfully a definite research, it may be assumed that after obtaining the bachelor's degree at least three years of work will be necessary to meet all the requirements of the degree of Doctor of Science in Hygiene.

To be accepted as a candidate for this degree the following requirements must be fulfilled:

a. A degree in arts or science or its equivalent, as evidence of a liberal education.

b. Certificates of the satisfactory completion of adequate courses in chemistry, physics, and biology.

c. Certificates of the satisfactory completion of adequate courses in anatomy, physiology, and pathology.

d. In exceptional cases, on the recommendation of the head of a department, a candidate may be accepted who

offers in place of (c) satisfactory evidence of special training of an advanced character in subjects fundamental to his main field of work.

After acceptance as a candidate the student will be assigned for advice and guidance to the head of the department in which he will specialize. In order to be recommended for the degree the candidate must pass satisfactory written and oral examinations in his major subject and must present a dissertation, in prescribed form, embodying the results of an independent investigation. This dissertation must be presented to the Director, who will refer it for examination to a special committee. If the report of the committee is favorable the candidate will be asked to appear before the faculty for the oral examination. The dissertation must be published in whole or in part within a year after its acceptance by the faculty.

III. Course leading to the degree of Bachelor of Science in Hygiene:

It is evident that if public health work in this country develops along the lines followed at present there will soon be established in every community an organized service, including laboratory facilities, for the control of the health affairs of that community. For such services trained workers should be provided who can undertake the necessary work connected with the chemical and bacteriological examination of water, sewage, foods, excretions, blood; the preparation of bacteriological and serological material and sanitary inspections. Courses have been established for the training of such workers leading to the degree of Bachelor of Science in Hygiene. These courses require two years of combined work in the Medical School and the School of Hygiene and Public Health. They are based upon a liberal education and an adequate knowledge of physics, chemistry, and biology such as can be obtained in two years of a college course. The first year's work consists of courses in physiology, bacteriology, anatomy

and histology, and the applications of physiology to school and industrial hygiene. The second year's work consists of courses in advanced bacteriology, immunology, parasitology, statistics, the chemistry of foods, water and sewage, nutritional hygiene, and sanitary engineering. The requirements for matriculation in these courses are as follows:

a. Certificate of the completion of at least two years of work in an approved college.

b. Certificates of adequate courses in biology, physics, and chemistry, including organic chemistry.

By an adequate course is meant in physics one year of college work covering approximately 100 hours of laboratory and 100 hours of class work; in biology one year of college work covering approximately 150 hours of laboratory and 100 hours of class work; in chemistry one to two years of college work covering approximately 250 hours of laboratory and 120 hours of class work.

IV. Courses leading to a Certificate in Public Health:

A certificate in public health may be awarded to qualified persons after one year of residence and the satisfactory completion of lectures and laboratory courses equivalent in amount to the work of a full academic year. The courses followed may vary according to the individual need of the applicant, but they must include practical work in epidemiology and in such other courses as may be approved by the faculty.

Candidates for these certificates must be graduates in medicine of an approved medical school or graduates in arts or science who can furnish satisfactory evidence of previous training in the physical and medical sciences.

SPECIAL STUDENTS

An opportunity to use the facilities of the School will be granted to the following groups of special students not registered as candidates for a degree:

1. Public health officers who may wish to take one or more lectures or laboratory courses, or engage in the study of some special problem.
2. Other qualified persons who may wish to attend special courses or undertake research work and whose qualifications receive the formal approval of the faculty of the School.

COURSES FOR SOCIAL WORKERS, NURSES, AND TEACHERS

It is the intention of the School to organize, in the near future, a series of courses which will be designed especially for the instruction of health nurses, social workers, and teachers. These courses will be of a practical character, and those who register for them and pass the examinations will be granted suitable certificates. The relations of public and personal hygiene and of individual sanitation to the welfare of society will receive especial consideration. The details concerning these courses will be announced later.

PUBLIC AND SPECIAL LECTURES

In connection with the class courses a series of lectures, open to the public, will be arranged annually. The object of these lectures will be to bring before interested persons the general facts and points of view of modern hygiene, with the hope that in this way the School may serve as a center for the distribution of useful knowledge in all matters pertaining to sanitation and preventive medicine. At the end of each session these lectures will be published in pamphlet form.

The following schedule was arranged for the academic year 1918-1919:

Professor W. T. Sedgwick, of the Massachusetts Institute of Technology.

Subject: The Rise and Progress of Hygiene and Sanitation.
Monday, October 7, 1918.

Professor George C. Whipple, of Harvard University.

Subjects: 1. Human Health and the American Engineer.
2. Analyzing a Water Analysis.
Monday and Tuesday, November 4-5, 1918.

Professor W. F. Willcox, of Cornell University.

Subjects: 1. The Prolongation of Life as a Test of Progress.
2. The Birth Rate in the United States.
Thursday and Friday, December 12-13, 1918.

Dr. William H. Park, of the Department of Health, City of New York.

Subjects: 1. The Prevention of Diphtheria especially through Toxin-Antitoxin Injections.
2. Organization of Municipal Health Laboratories.
Monday and Tuesday, January 6-7, 1919.

Dr. M. J. Rosenau, of Harvard University.

Subjects: 1. Ptomaine Poisoning.
2. The Cause and Mode of Spread of Influenza.
Monday and Tuesday, January 20-21, 1919.

Dr. C. E. A. Winslow, of Yale University.

Subjects: 1. Ventilation.
2. Industrial Hygiene.
Monday and Tuesday, February 10-11, 1919.

Dr. Hermann M. Biggs, of the State Department of Health, New York.

Subject: The Development of the Public Health Laboratory and its Influence on Public Health Work and Medical Practice.
Monday, February 17, 1919.

Dr. Simon Flexner, of the Rockefeller Institute for Medical Research.

Subjects: 1. Epidemiology of Influenza.
2. Epidemiology of Poliomyelitis.
Monday and Tuesday, March 17 and 18, 1919.

Dr. Edward R. Stitt, Rear Admiral, U. S. N.
Subject: The Problem of Diagnosis in Tropical Diseases.
Tuesday, March 25, 1919.

Mr. Wickliffe Rose, General Director, International Health Board.
Subject: Two Demonstrations in Malarial Control.
Monday, April 14, 1919.

In addition to these lectures designed especially for the general public, a second series will be given annually upon the general topic of Public Health Administration and Organization. While intended primarily for the students and staff of the School, these lectures will be opened also to a limited number of persons interested in the subjects discussed. The schedule of these lectures as arranged for the session of 1918-19 was as follows:

1. President F. J. Goodnow—On Administrative Law, February 5, 7, 12, 14, 19, 21, 26, 28 and March 5, 7.
2. Dr. John A. Ferrell, Director for the United States of the International Health Board—On Public Health Administration, March 12, 14, 19, 21.
3. Col. Bailey K. Ashford, M. C., U. S. A.—On Military Hygiene. March 26, 28 and April 2, 4.
4. Dr. James C. Pryor, Medical Director, U. S. N.—On Naval Hygiene, April 9, 11, 16.
5. Dr. Wade H. Frost, Surgeon, U. S. Public Health Service—On Methods of Epidemiology, April 25, 30, and May 2, 7.

In response to a special request received from the Maryland Division of the National Congress of Mothers and endorsed by numerous women's organizations, the School proposes to arrange an annual course of public lectures upon the Problems of Motherhood. The first series of these lectures was given during the session of 1918-1919 by Dr. J. Whitridge Williams, Dean of the Medical School and Professor of Obstetrics, as follows:

1. The biological significance of reproduction. Statistical study of the birth and death rate, and their national significance. April 3, 1919.

2. Study of the reproductive cells; their bearing upon reproduction and heredity. Development of the embryo and its relation to the traditional views concerning maternal impressions. April 10, 1919.

3. Changes in the maternal organism incident to pregnancy. The mechanical problems of labor; its dangers. The control of pain. April 17, 1919.

4. The unnecessary wastage of infant life. Its avoidance by so-called pre-natal care. April 24, 1919.

5. Criminal abortion and birth control. The ethics of some of the problems of maternity. May 1, 1919.

SCHOLARSHIPS

A certain number of scholarships carrying free tuition will be awarded annually by the Trustees of the University upon the recommendation of the faculty. These scholarships will be awarded for one year, but may be renewed for a second year at the discretion of the faculty. Applications may be made to the Director of the School.

FELLOWSHIPS

Six research fellowships carrying each a stipend of $1,000, and exemption from all charges for tuition will be awarded annually by the Trustees of the University upon the recommendation of the faculty. The conditions upon which these fellowships will be awarded are as follows:

1. The applicant must have received his doctor's degree in medicine, science, philosophy or public health, or furnish evidence of experience and meritorious service in scientific work.

2. The holder of a fellowship must give his time primarily to investigative work, approved by some member of the staff of the School, and must be in residence during the academic year, unless permission

is granted to him by the faculty to carry on his work elsewhere.

3. The application should be made prior to March 1st, in writing, addressed to the Director of the School of Hygiene and Public Health.

REGISTRATION AND CALENDAR

All students upon entering must report at the Director's office for registration and payment of fees.

The academic year is the same as in other departments of the University (see page 5).

Instruction begins in the fall on the Tuesday nearest to the first of October. The graduating exercises are held on the third Tuesday of June. There are short recesses at Christmas and Easter.

Since instruction is arranged on a trimestral basis, it is possible for students to enter the School at the beginning of any trimester, and to graduate at the end of any trimester. Formal bestowal of degrees takes place at the University Commencement in June and on Commemoration Day, February 22nd.

TUITION

The charge for tuition in the courses leading to a degree or a certificate will be $250 per annum, payable at the office of the Director, in three instalments, one at the beginning of each trimester. For students taking special courses the charge for each course will be arranged on application.

For further information address the Director of the School of Hygiene and Public Health, Johns Hopkins University, 310-312 W. Monument Street, Baltimore, Md.

DEPARTMENTS OF INSTRUCTION AND ANNOUNCEMENT OF COURSES

DEPARTMENTS OF INSTRUCTION

BACTERIOLOGY

William W. Ford, M. D., Associate Professor.
George H. Robinson, Ph. D., Associate.
Paul Eaton, M. D., Instructor.
Percy D. Meader, Ph. D., Instructor.
Linda B. Lange, M. D., Fellow.
Nathan Berman, Ph. D., Fellow.
Raymond C. Salter, S. B., Fellow.

1. Advanced Bacteriology. Dr. Ford, Dr. Robinson, and the members of the staff. This course is designed especially for the training of students in the modern bacteriological methods employed in the diagnosis of the acute respiratory diseases, in the study of the infections of the intestinal tract and in the examination of water, milk, and foods for their sanitary quality. It includes the study of the pneumococcus, the influenza bacillus, and the hemolytic streptococcus from sputum, the diphtheria bacillus from the secretions of the nose and throat, and the meningococcus from the spinal fluid. The newer methods for the cultivation of the tubercle bacillus from the sputum are demonstrated and the isolation of the typhoid, paratyphoid and dysentery bacilli practised as far as possible upon actual cases of disease. The standard methods employed in the examination of water, milk and food are considered in detail. Only those students will be admitted to this course who can present satisfactory evidence of proper training in elementary bacteriology.

2. Elementary Bacteriology. Dr. Meader. This course is designed to give students a fundamental training in bacteriology with special reference to laboratory technique. It includes the making of the ordinary culture media, the preparation and use of stains and the methods of isolating

and identifying the more common pathogenic and non-pathogenic bacteria. Completion of this course qualifies students for the course in advanced bacteriology.

3. Research in Bacteriology. Dr. Ford. Opportunities are provided for advanced research work in bacteriology in a variety of fields. Qualified students will be given problems to work out under the immediate supervision of the Associate Professor of Bacteriology, and opportunities will be offered to candidates for advanced degrees to prepare theses on special topics.

IMMUNOLOGY

Carroll G. Bull, M. D., Associate Professor.
————————, Associate.
Ida W. Pritchett, A. B., Assistant.
Roscoe R. Hyde, Ph. D., Fellow.

The course in immunology will consist of fifteen hours a week devoted to laboratory work and three hours to lectures and conferences during one trimester.

The work consists of a systematic course of lectures or conferences on the principles and theories of infection and immunity, of experimental work demonstrating these principles and theories, and of laboratory work designed to give training in serological reactions and in the preparation of microbic vaccines and immune sera. Special attention is given to the application of immunologic principles and methods in prevention, diagnosis, and treatment of disease.

The course is divided into sections as follows:

1. Serological Reactions This part of the course consists of the preparation and demonstration of agglutinins, precipitins, hemolysins, opsonins, complement-fixing antibodies, etc. Practical methods, such as the Wassermann and Widal reactions, are given due consideration.

2. Vaccines. The work of this section covers the preparation and administration of vaccines—bacterial, rabies, and smallpox; active immunization in prophylaxis and therapy.

3. Immune Sera. In Section 3 work is given in the production and standardization of immune sera—antimicrobic and antitoxic. The production of bacterial toxins and toxin-antitoxin reactions are studied. The use of immune sera as preventive and therapeutic agents is demonstrated by appropriate experiments.

4. Infection and Immunity. Here a theoretical and practical study is made of the mechanisms of the interactions of attacking microörganisms and the attacked organism; considering, on the one hand, the instruments of infections—aggressins, toxins, capsule formation, etc., and, on the other hand, the defensive instruments of the host—antitoxins, lysins, opsonins, etc. Anaphylaxis is also studied in this portion of the course.

SANITARY ENGINEERING

Charles J. Tilden, S. B., Professor of Civil Engineering.
John H. Gregory, S. B., Associate Professor of Civil Engineering.

The course in Sanitary Engineering will be given at Homewood in the Department of Civil Engineering, by Professor John H. Gregory. Three lectures or conferences and six hours of laboratory, field work, or reading during one trimester. The course will be designed to give the student a comprehensive general view of modern sanitary engineering practice. The time will be about equally divided between the main topics of water supply and sewerage, with a discussion of modern methods of collecting and disposing of garbage and other municipal wastes. The laboratory exercises will include the study of existing sanitary works from photographs, working drawings and specifications. This will be coördinated with inspection trips in the field to typical water purification and sewage disposal plants.

CHEMICAL HYGIENE

ELMER V. MCCOLLUM, Ph. D., Professor.
VICTOR E. NELSON, S. M., Associate.
HELEN T. PARSONS, S. M., Instructor.
FLORENCE POWDERMAKER, S. B., Instructor.
MARTHA KOEHNE, S. M., Instructor.
NINA SIMMONDS, S. B., Instructor.
WALTER E. THRUN, Ph. D., Fellow.

CHEMICAL METHODS APPLIED TO HYGIENE. Under the direction of Professor E. V. McCollum and Miss Powdermaker. The course will consist of fifteen hours of laboratory work and three conferences weekly during one trimester. It will include a study of the composition of the more important foods, the changes undergone in cooking, preserving, storing, etc., and the nature of the substances used in adulterations. Practice will be given in the methods of water analysis, chemical treatment of waters, filtration, etc. Students must have had courses in qualitative, quantitative and organic chemistry before being eligible to the course.

ANIMAL NUTRITION. Dr. E. V. McCollum. Three lectures or conferences weekly during one trimester. In this course will be given assigned readings upon which written or oral reports will be required. The more important researches which have contributed to present day knowledge in this field are studied. The results of animal experimentation are correlated with human experience as far as possible. The special dietary properties of our natural food products are discussed and the evidence of the relation between the diet and health of certain large groups of people is presented.

CHEMICAL HYGIENE, ADVANCED. Dr. E. V. McCollum. Those who have the necessary preliminary training and who desire to do work of a special nature will be received at any time during the academic year.

JOURNAL CLUB. One hour weekly during the year. Those who take part in this course are expected to report from time to time upon papers relating to Chemical Hygiene which appear in current journals.

PROTOZOÖLOGY AND MEDICAL ZOÖLOGY

ROBERT W. HEGNER, Ph. D., Associate in Protozoölogy.
WILLIAM W. CORT, Ph. D., Associate in Helminthology.
RUTH STOCKING LYNCH, Ph. D., Instructor in Protozoölogy.
WILLIAM H. TALIAFERRO, Ph. D., Instructor in Protozoölogy.
————————, Instructor in Medical Entomology.

1. PROTOZOÖLOGY. Drs. Hegner, Lynch, and Taliaferro. Three days per week during one trimester. The course consists of three lectures or conferences and fifteen hours of laboratory work per week. The aims are (1) to gain a general knowledge of the biology of the protozoa; (2) to become acquainted with pathogenic species and the diseases caused by them; (3) to learn methods of preventing the spread of pathogenic species by the control of the agents of transmission; (4) to acquire a knowledge of the problems presented by pathogenic species and the ability to solve them; thus laying the foundation necessary for carrying on original investigations, and making it possible to take charge of public health work in Protozoölogy in any community, and to direct campaigns in cases of epidemics.

The lectures and conferences are devoted to the presentation and discussion by instructors and students of information obtained from original observations, from current literature, and from text and reference books.

In the laboratory the four classes of protozoa are considered separately, involving the study (1) of typical free-living species, (2) of species parasitic in lower animals and (3) a more detailed examination of species parasitic in man. Methods are also learned of collecting, cultivating and preparing for study both free-living and parasitic protozoa.

2. PARASITOLOGY. Drs. Hegner and associates in Helminthology and Medical Entomology. Three days per week during one trimester.

This course is designed especially for those who wish to gain a knowledge of the animal parasites of man in a short

time. The more technical phases of the subjects of Protozoölogy, Medical Entomology and Helminthology are emphasized. The student is taught to recognize the species of parasites pathogenic to man and the diseases caused by them; how to collect, prepare for study, examine, and cultivate the more important species; and the practical methods of prevention and control.

The lectures are supplemented by the required reading of scientific articles in periodicals and reference books.

The laboratory work includes the study of stages of the life histories of the parasites; methods of preparing material for study; methods of laboratory diagnosis; the cultivation of parasites in lower animals and in artificial media; and excursions to incoming ships, to hospitals, and to suitable areas near Baltimore for the purpose of learning how to recognize the diseases caused by parasites, how to collect material, and how to control carriers.

3. Protozoölogical Studies. Students who may be able to attend the School for only part of the year and at a time when the regular course in Protozoölogy is not given, may elect this course after consultation with the head of the department. Several hours per week will be spent with the instructor in charge, during which the student will be furnished with an outline of the work to be done and laboratory material. The subject matter considered and the credit given are the same as in the regular course, but students who elect this course must necessarily depend more upon their own resources and will receive less assistance from the instructors than the members of the regular class.

4. Helminthology. Dr. Cort. Three days per week during one trimester. This course aims (1) to give a general knowledge of the biology of the flatworms (Platyhelminthes), round worms (Nemathelminthes), and certain other worms; (2) to acquaint the student with pathogenic species and the diseases caused by them; (3) to present methods of preventing the spread of pathogenic species by the con-

trol of the agents of transmission; and (4) to furnish a knowledge of the problems presented by pathogenic species that will enable the student to carry on original investigations or take charge of public health work in Helminthology.

5. Medical Entomology. Dr. ————————. Three days per week during one trimester. This course is devoted chiefly to a study of the insects that transmit the bacteria, protozoa, and worms that cause disease in man. Sufficient training in general entomology is included to furnish a foundation upon which to build a knowledge of the more important pathogenic species. Emphasis is placed on those phases of the subject relating to prevention and control.

6. Investigations in Protozoölogy, Medical Entomology and Helminthology. Students who have had sufficient training may undertake original investigations in any of the above subjects. Small problems may be completed by properly qualified students in one trimester, but usually a year or more is required. Those who wish to elect any of these subjects as majors toward the degree of Doctor of Science must plan their course so that several entire years may be devoted to research.

PHYSIOLOGICAL HYGIENE

William H. Howell, Ph. D., M. D., Professor.
Reynold A. Spaeth, Ph. D., Associate.
Janet Howell Clark, Ph. D., Instructor
————————, Instructor.
George A. Talbert, S. M., Fellow.

By Physiological Hygiene is understood the application of the facts and principles of animal physiology to problems of personal and public hygiene. The development of modern hygiene has been chiefly along the lines of protection from infectious and contagious diseases, but it is obvious that there are other large fields of the subject which should be cultivated. The important subjects of diet and nutrition have been assigned to the department of Chemical Hygiene. In the

department of Physiology two main lines of work will be followed, namely, the study of exercise and fatigue in their relations to the neuromuscular mechanisms and to the health of the body in general, and, secondly, the physiological effects of the external environment. The general objective that will be held in view is to furnish a scientific preparation for work in the field of industrial and educational hygiene. As organized at present there will be a series of conferences or lectures three times a week and a series of laboratory exercises occupying about fifteen hours a week during one trimester. The conferences will discuss the topics indicated above from both the practical and the theoretical side, but the laboratory exercises will be limited as far as possible to practical methods. Students taking this course must have had previous instruction in animal physiology such as is given in medical schools. The course will be arranged in three parts, each under the special direction of one of the members of the staff. The schedule during the session of 1918-19 was as follows:

I. The composition of the atmosphere in its relation to health, including the principles of ventilation and climatology. Dr. Howell.

II. The physiological action of light, heat and other radiations. Dr. Clark.

III. Exercise and Fatigue, muscular and nervous. Dr. Spaeth.

IV. Laboratory exercises. Drs. Howell, Spaeth and Clark. These exercises take up the methods of analyzing air for carbon dioxid, oxygen, moisture and various impurities such as carbon monoxide, sulphur dioxid, dust, etc.; photometric methods of determining illumination in rooms; the measurement of visual acuity and errors of vision and the physiological and psychological methods of studying the coordinated activities of the neuromuscular mechanisms and the phenomenon of fatigue in its relations to education and the industries.

V. A Journal Club, consisting of the instructors and advanced students in the department of Physiological Hygiene and in the department of Physiology in the Medical School, meets Wednesday at 9 a. m. throughout the year. The object of these meetings is to present and discuss recent experimental work in Physiology.

VI. Research. Special or advanced students will be assigned problems for investigation under the supervision of members of the staff.

BIOMETRY AND VITAL STATISTICS

Raymond Pearl, Ph. D., Professor.
Lowell J. Reed, Ph. D., Associate.
John R. Miner, A. M., Associate.
Sylvia M. Parker, A. M., Instructor.
Lewis Padgett, Assistant.
Amy G. Phillips, Assistant.

The work in this department is intended to meet the needs of two classes of students: (a) Those training for work in public health; (b) those intending to specialize in statistical work either as teachers, investigators, or administrators.

I. Introduction to Vital Statistics. Dr. Pearl, Dr. Reed, Mr. Miner, and Mr. Padgett. Three days per week during one trimester. The course will be designed to acquaint the student, on the one hand, with modern methods of collecting, tabulating, adjusting, and drawing sound conclusions from statistical data regarding human life, and, on the other hand, with the chief results which have accrued from the study of vital statistics in the past. The course will involve a considerable amount of laboratory work, in which the student will gain first-hand familiarity with statistical data and methods in the fields of hygiene and public health. Special emphasis will be placed upon modern biometric and graphic methods.

II. Advanced Statistical Theory. Dr. Pearl and Dr. Reed. This course is designed for those expecting to spe-

cialize in some phase of statistical work, and will be opened only to a limited number of properly qualified students. A prerequisite is Course I in Vital Statistics. It will vary in content in different years, involving, at different times, the discussion of such subjects as the theory of probability, curve fitting, the higher theory of correlation, actuarial mathematics, possible new applications of statistical methods in the fields of medicine and hygiene, etc.

III. Investigations in Biometry and Vital Statistics. Dr. Pearl. In the work of the department special attention will be devoted to research. Properly qualified workers, who may be either candidates for the degree of Doctor of Science or special students, may be taken into the laboratory and either assigned problems in connection with the general co-ordinated plan of investigation being pursued in the department, or aided and directed in the development of their own problems. The general lines along which research may profitably be undertaken in the department are: higher statistical theory, analytical studies on human vital statistics, genetic and other biological factors influencing the duration of life, the study by modern statistical methods of epidemiological problems.

SCHEDULES OF COURSES FOR THE SESSION OF 1919-1920

SCHEDULES OF COURSES

SCHEDULE FOR THE COURSE LEADING TO THE DEGREE OF DOCTOR OF PUBLIC HEALTH

The schedule arranged for candidates for the degree of Doctor of Public Health will consist of a series of trimestral laboratory courses together with certain general and special lecture courses. The laboratory courses will extend in most cases from 9 a. m. to 4 p. m. (Saturday, 9 a. m. to 1 p. m.), and will include appropriate lectures or conferences. Each student will be expected to complete satisfactorily twelve trimestral laboratory courses, taking two such courses in each trimester, so that under ordinary conditions two years will be required to complete the work for the degree. It is understood that candidates for the degree may enter upon their work at the beginning of any trimester. In making up his twelve required laboratory courses each student will be given an opportunity to elect two or three of these courses in one department. The additional elected courses will be of a special or advanced character. In addition each student will be expected to attend the afternoon lectures during one year, and will be requested to show evidence of satisfactory field or laboratory work during one summer in some approved public health service.

Students taking the combined course in Medicine and Public Health will be required to absolve only nine of the trimestral laboratory courses. The following provisional announcement is made of the arrangement of courses for the session of 1919-1920:

First Trimester (October to January)

Laboratory Courses—

Elementary Bacteriology	Monday, Wednesday, Friday.
Chemistry	Tuesday, Thursday, Saturday.
Sanitary Engineering	Monday, Wednesday, Friday.
Protozoölogy	Tuesday, Thursday, Saturday.

Afternoon Lectures—

Public Lectures	Monday, 5 p. m., according to special announcement.
Selected Topics in Hygiene	Tuesday, 4 p. m., Dr. Welch.
Venereal Diseases	Wednesday, 4 p. m.
Tuberculosis	Thursday, 4 p. m.

SECOND TRIMESTER (JANUARY TO MARCH 15)

Laboratory Courses—

Advanced Bacteriology	Monday, Wednesday, Friday.
Statistics	Tuesday, Thursday, Saturday.
Epidemiology	Monday, Wednesday, Friday.
Entomology	Tuesday, Thursday, Saturday.

Afternoon Lectures—

Public Lectur	Monday, 5 p. m., according to special announcement.
Selected Topics in Hygiene	Tuesday, 4 p. m., Dr. Welch.
Infectious Diseases	Wednesday, 4 p. m.
Metabolism and Nutrition	Monday, Thursday, and Friday, 4 p. m., Dr. McCollum.

THIRD TRIMESTER (MARCH 15 TO JUNE)

Laboratory Courses—

Physiological Hygiene	Monday, Wednesday, Friday.
Immunology	Tuesday, Thursday, Saturday.
Helminthology	Tuesday, Thursday, Saturday.

Afternoon Lectures—

Public Lectures	Monday, 5 p. m., according to special announcement.
Selected Topics in Hygiene	Tuesday, 4 p. m., Dr. Welch.
Administrative and Sanitary Law	Wednesday, 4 p. m., President Goodnow.
Mental and Social Hygiene	Thursday, 4 p. m.

While the selection of laboratory courses in any one trimester may be made, as far as possible, in accordance with the special needs of each student, the following arrangement is recommended:

First Trimester—Elementary Bacteriology and Chemistry.
Second Trimester—Advanced Bacteriology and Statistics.
Third Trimester—Immunology and Applied Physiology.

Fourth Trimester—Sanitary Engineering and Protozoölogy.
Fifth Trimester—Epidemiology and Medical Entomology.
Sixth Trimester—Helminthology and Advanced Elective in some one Department.

SCHEDULE FOR THE COURSE LEADING TO THE DEGREE OF BACHELOR OF SCIENCE

First Trimester (October to January)

Elementary Bacteriology—School of Hygiene—
Monday, Wednesday, Friday, 9 a. m. to 4 p. m.
Histology—Medical School—
Tuesday, Thursday, 9 a. m. to 4 p. m.

Second Trimester (January to March 15)

Anatomy—Medical School—
Tuesday, Thursday, 9 a. m. to 4 p. m.
Physiology—School of Hygiene—
Monday, Wednesday, Friday, 9 a. m. to 4 p. m.

Third Trimester (March 15 to June)

Physiology—Medical School—
Lectures, 9 a. m., Tuesday, Thursday.
Anatomy—Medical School—
Tuesday, Thursday, 10 a. m. to 4 p. m.
Physiological Hygiene—School of Hygiene—
Monday, Wednesday, Friday, 9 a. m. to 4 p. m.

Fourth Trimester (October to January)

Chemistry—School of Hygiene—
Tuesday, Thursday, Saturday, 9 a. m. to 4 p. m.
Sanitary Engineering—Homewood—
Monday, Wednesday, Friday, 9 a. m. to 1 p. m.
Afternoon Lectures—
Public Lectures—Monday, 5 p. m., according to special announcement.
Selected Topics in Hygiene—Tuesday, 4 p. m., Dr. Welch.

Fifth Trimester (January to March 15)

Advanced Bacteriology—School of Hygiene—
Monday, Wednesday, Friday, 9 a. m. to 4 p. m.

Parasitology—School of Hygiene—
Tuesday, Thursday, Saturday, 9 a. m. to 4 p. m.

Afternoon Lectures—

Public Lectures—Monday, 5 p. m., according to special announcement.

Selected Topics in Hygiene—Tuesday, 4 p. m., Dr. Welch.

Metabolism and Nutrition—Monday, Thursday and Friday, 4 p. m., Dr. McCollum.

SIXTH TRIMESTER (MARCH 15 TO JUNE)

Immunology—School of Hygiene—
Tuesday, Thursday, Saturday, 9 a. m. to 4 p. m.

Epidemiology—School of Hygiene—
Monday, Wednesday, Friday, 9 a. m. to 4 p. m.

Afternoon Lectures—

Public Lectures—Monday, 5 p. m., according to special announcement.

Selected Topics in Hygiene—Tuesday, 4 p. m., Dr. Welch.

Administrative and Sanitary Law—Wednesday, 4 p. m., President Goodnow.

Mental and Social Hygiene—Thursday, 4 p. m.

INDEX

ALPHABETICAL INDEX OF NAMES

	PAGE
Ashford, B. K.	26
Babor, R. J.	12
Baker, N. D.	6
Barrett, E. J.	12
Berman, N.	11, 31
Biggs, H. M.	25
Boyce, W. G.	6
Brown, H. E.	12
Bull, C. G.	8, 14, 32
Clark, J. H.	10, 37, 38
Cort, W. W.	9, 35, 36
Durham, M. L.	14
Eaton, P.	9, 31
Ferrell, J. A.	12, 26
Flexner, S.	25
Ford, W. W.	8, 14, 31, 32
Frost, W. H.	26
Glenn, J. Jr.	6
Goddard, G. A.	12
Goodnow, F. J.	7, 14, 26, 46
Gregory, J. H.	33
Griswold, B. H., Jr.	6
Harlan, H. D.	6
Hegner, R. W.	9, 14, 35
Howell, W. H.	7, 14, 17, 37, 38
Hyde, R. R.	11, 32
Jacocks, W. P.	13
Keyser, R. B.	6
Koch, M. L.	13
Koehne, M.	10, 34
Lange, L. B.	11, 31
Levering, E.	6
Lichtenstein, H.	13
Lynch, R. S.	10, 35
McCollum, E. V.	7, 14, 34, 44, 46
Marburg, T.	6
Meader, P. D.	10, 31
Miller, S. A.	13
Miner, J. R.	9, 39
Nelson, V. E.	8, 34
Newman, G.	12
Padgett, L.	10, 39
Park, W. H.	25
Parker, S. L.	9, 39
Parsons, H. T.	9, 34
Payne, F. K.	13
Pearl, R.	8, 14, 39, 40
Phillips, A. G.	11, 39
Pitlick, S.	12
Powdermaker, F.	9, 34
Pritchett, I. W.	10, 32
Pryor, J. C.	26
Randall, B.	6
Reed, L. J.	9, 14, 39
Robinson, G. H.	8, 14, 31
Rose, W.	18, 26
Rosenau, M.	25
Salter, R. C.	11, 31
Sedgwick, W. T.	25
Simmonds, N.	10, 34
Souza, G. H. de P.	12
Spaeth, R. A.	8, 14, 37, 38
Stanton, R. E.	13
Stitt, E. R.	26
Talbert, G. A.	11, 37
Taliaferro, W. H.	10, 35
Tilden, C. J.	7, 14, 33
Thies, E. S.	14
Thrun, W. E.	11, 34
Vieira, F. B.	12
Welch, W. H.	7, 14, 17, 18, 44, 45, 46
Whipple, G. C.	25
White, M., Jr.	6
Willard, D.	6
Willcox, W. F.	25
Williams, G. H.	12
Williams, J. W.	26
Winslow, C. E. A.	25
Wood, F. W.	6

INDEX

	PAGE
Admission, Requirements for.... 19, 20, 22,	23
Advisory Board of the Faculty..	14
Assistant Director.....	7
Assistants, List of.....10,	11
Associates, List of.....8,	9
Associate Professors, List of....	8
Announcement of Courses, Departments of Instruction and,	
Bacteriology	31
Biometry and Vital Statistics	39
Chemical Hygiene.....	34
Immunology	32
Physiological Hygiene.....	37
Protozoölogy and Medical Zoölogy	35
Sanitary Engineering.....	33
Social Workers, Nurses and Teachers	24
Special Students.....	24
Bachelor of Science in Hygiene, Course leading to the degree of	22
Bacteriology, Course in.....	31
Biometry and Vital Statistics, Course in.....	39
Board of Trustees.....	6
Advisory, of the Faculty...	14
Calendar	5
Registration and.....	28
Candidates for the Degree of	
Doctor of Public Health....	12
Doctor of Science in Hygiene	12
Bachelor of Science in Hygiene	12
Certificate in Public Health, Course leading to a.....	23
Chemical Hygiene, Course in....	34
Committee, Executive.....	14
Library	14
Contents	3
Courses and Degrees,	
Doctor of Public Health...	19
Doctor of Science in Hygiene	20
Bachelor of Science in Hygiene	22
Certificate in Public Health,	23
Social Workers, Nurses and Teachers	24
Special Students.....	24
Degrees, Candidates for.....	12
Courses and	
Doctor of Public Health,	19
Doctor of Science in Hygiene	20
Bachelor of Science in Hygiene	22
Certificate in Public Health	23
Social Workers, Nurses and Teachers.....	24
Special Students.....	24
Departments of Instruction and Announcement of Courses:	
Bacteriology	31
Biometry and Vital Statistics,	39
Chemical Hygiene.....	34
Immunology	32
Physiological Hygiene.....	37
Protozoölogy and Medical Zoölogy	35
Sanitary Engineering.....	33
Social Workers, Nurses and Teachers.....	24
Special Students.....	24
Director	7
Director, Assistant.....	7
Doctor of Public Health, Course leading to degree of.....	19
Doctor of Science in Hygiene, Course leading to the degree of	20
Executive Committee.....	14
Faculty	7
Advisory Board of the.....	14
Fellows	11
Fellowships	27

	PAGE
General Statement	17
Immunology, Course in	32
Instruction, Departments of, and Announcement of Courses:	
Bacteriology	31
Biometry and Vital Statistics,	39
Chemical Hygiene	34
Immunology	32
Physiological Hygiene	37
Protozoölogy and Medical Zoölogy	35
Sanitary Engineering	33
Social Workers, Nurses and Teachers	24
Special Students	24
Instructors, List of	9, 10
Lectures, Public and Special	24
Library Committee	14
Librarian	14
Medical Zoölogy, Protozoölogy and, Course in	35
Nurses and Teachers, Courses for Social Workers	24
Other Officers	14
Physiological Hygiene, Course in,	37
President of the University	7
Professors, List of	7, 8
Associate, List of	8
Protozoölogy and Medical Zoölogy, Course in	35
Public and Special Lectures	24

	PAGE
Requirements for Admission	19, 20, 22, 23
Registration and Calendar	28
Sanitary Engineering, Course in	33
Schedules of Courses for Session 1919-1920:	
Doctor of Public Health	43
Bachelor of Science in Hygiene	45
Scholarships	27
Secretary	14
Social Workers, Nurses and Teachers, Courses for	24
Special Lectures, Public and	24
Special Students, Courses for	24
List of	12
Students, 1918-1919	12
Statement, General	17
Statistics, Biometry and Vital, Course in	39
Teachers, Courses for Social Workers, Nurses and	24
Treasurer of the University	6
Trustees, Board of	6
Tuition	28
University, President of the	7
Treasurer of the	6
Trustees of the	6
Zoölogy, Protozoölogy and Medical, Course in	35

Zhy

JUN 14

New Series, 1920
No. 3

Whole Number 323

THE

JOHNS HOPKINS

UNIVERSITY CIRCULAR

SCHOOL OF HYGIENE AND PUBLIC HEALTH

CATALOGUE AND ANNOUNCEMENT FOR 1920-1921

BALTIMORE, MARYLAND
PUBLISHED BY THE UNIVERSITY
ISSUED MONTHLY, EXCEPT FEBRUARY, JUNE, AUGUST, SEPTEMBER
APRIL, 1920

Entered, October 21, 1903, at Baltimore, Md., as second class matter, under Act of Congress of July 16, 1894

Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized on July 3, 1918

HENRY E. HUNTINGTON
STATE UNIVERSITY

THE

JOHNS HOPKINS UNIVERSITY

SCHOOL OF HYGIENE AND PUBLIC HEALTH

CATALOGUE AND ANNOUNCEMENT
FOR 1920–1921

BALTIMORE
THE JOHNS HOPKINS PRESS
1920

CONTENTS

PAGE

CALENDAR 5

TRUSTEES OF THE JOHNS HOPKINS UNIVERSITY 6

TREASURER OF THE UNIVERSITY 6

FACULTY 7

FELLOWS 13

ROCKEFELLER FOUNDATION SCHOLARS 14

STUDENTS 15

SUMMARY 20

ADVISORY BOARD OF THE FACULTY 21

EXECUTIVE COMMITTEE 21

COMMITTEE ON APPLICATIONS 21

COMMITTEE ON PUBLICATIONS 21

LIBRARY COMMITTEE 21

OTHER OFFICERS 21

GENERAL STATEMENT AND REQUIREMENTS FOR ADMISSION:

- General Statement 25
- Courses and Degrees:
  - Doctor of Public Health 27
  - Doctor of Science in Hygiene 29
  - Bachelor of Science in Hygiene 30
  - Certificate in Public Health 31
  - Special students 32
  - The De Lamar Lectures in Hygiene 32

PUBLIC LECTURES 33

COURSE IN SCHOOL HYGIENE 36

SCHOLARSHIPS 36

FELLOWSHIPS 36

REGISTRATION AND CALENDAR 37

TUITION 37

DEPARTMENTS OF INSTRUCTION AND ANNOUNCEMENTS OF COURSES:

- Bacteriology 41
- Immunology 42
- Sanitary Engineering 43
- Chemical Hygiene 44
- Medical Zoology 45
- Physiological Hygiene 47
- Biometry and Vital Statistics 50
- Public Health Administration 54
- Epidemiology 55

SCHEDULES OF COURSES FOR THE SEASON OF 1920-1921:

- Doctor of Public Health 59
- Bachelor of Science in Hygiene 62
- Intensive Course of Instruction for Public Health Officer 64

ALPHABETICAL INDEX OF NAMES 67

INDEX 69

1920

JANUARY

S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
..	..	..	..	..	..	..

FEBRUARY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	..	..	..	..	..	..
..	..	..	..	..	..	..

MARCH

S	M	T	W	T	F	S
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	..	..	..
..	..	..	..	..	..	..

APRIL

S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	..
..	..	..	..	..	..	..

MAY

S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	..	..	..	..	..
..	..	..	..	..	..	..

JUNE

S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	..	..	..
..	..	..	..	..	..	..

JULY

S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
..	..	..	..	..	..	..

AUGUST

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	..	..	..	..
..	..	..	..	..	..	..

SEPTEMBER

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	..	..
..	..	..	..	..	..	..

OCTOBER

S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	..	..	..	..	..	..

NOVEMBER

S	M	T	W	T	F	S
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	..	..	..	..
..	..	..	..	..	..	..

DECEMBER

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	..
..	..	..	..	..	..	..

1921

JANUARY

S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	..	..	..	..	..
..	..	..	..	..	..	..

FEBRUARY

S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	..	..	..	..	..
..	..	..	..	..	..	..

MARCH

S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	..	..
..	..	..	..	..	..	..

APRIL

S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
..	..	..	..	..	..	..

MAY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	..	..	..	..
..	..	..	..	..	..	..

JUNE

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	..	..
..	..	..	..	..	..	..

JULY

S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	..	..	..	..	..	..

AUGUST

S	M	T	W	T	F	S
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	..	..	..
..	..	..	..	..	..	..

SEPTEMBER

S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	..
..	..	..	..	..	..	..

OCTOBER

S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	..	..	..	..	..

NOVEMBER

S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	..	..	..
..	..	..	..	..	..	..

DECEMBER

S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
..	..	..	..	..	..	..

CALENDAR, 1920-1921

1920

April 1, Thursday—Easter recess begins (no classes).

April 8, Thursday—Instruction resumed.

June 15, Tuesday—Conferring of Degrees (4 p. m.).

September 28, Tuesday—Instruction begins.

November 25, Thursday—Thanksgiving Day. (All classes suspended.)

December 23, Thursday—Christmas recess begins (p. m.).

1921

January 3, Monday—Instruction resumed.

February 22, Tuesday—Commemoration Day. Public exercises at 11 a. m. (All classes suspended.)

March 24, Thursday—Easter recess begins (no classes).

March 31, Thursday—Instruction resumed.

June 21, Tuesday—Conferring of Degrees (4 p. m.).

BOARD OF TRUSTEES

R. Brent Keyser, *President*
Eugene Levering
Theodore Marburg.
Blanchard Randall
Henry D. Harlan, *Secretary*
Miles White, Jr.
B. Howell Griswold, Jr.
John Glenn, Jr.
Frederick W. Wood
Daniel Willard
Newton D. Baker

The President of the University, *ex officio*

W. Graham Boyce, *Treasurer*

FACULTY

FRANK JOHNSON GOODNOW, LL. D.

President of the University

A. B., Amherst College, 1879, and A. M., 1887; LL. B., Columbia University, 1882; LL. D., Amherst College, 1897, Columbia University, 1904, Harvard University, 1909, Brown University, 1914, Princeton University, 1917; Professor of Administrative Law, Columbia University, 1887-1914.

6 W. Madison St.

WILLIAM HENRY WELCH, M. D., LL. D.

Director and Head of the Department of Bacteriology and Immunology

A. B., Yale University, 1870; M. D., Columbia University (College of Physicians and Surgeons, N. Y.), 1875; M. D. (Hon.), University of Pennsylvania, 1894; LL. D., Western Reserve University, 1894, Yale University, 1896, Harvard University, 1900, University of Toronto, 1903, Columbia University, 1904, Jefferson Medical College, 1907, Princeton University, 1910, Washington University, 1915, and University of Chicago, 1916; Professor of Pathological Anatomy and General Pathology in the Bellevue Hospital Medical College, N. Y., 1879-84; Pathologist to the Johns Hopkins Hospital and Baxley Professor of Pathology, 1884-1916; Dean of the Medical Faculty, 1889-98; President of the National Academy of Sciences, 1913-1917; President of the Board of Directors of the Rockefeller Institute for Medical Research; President of the American Association for the Advancement of Science, 1906; President of the American Medical Association, 1910-1911; Member of the American Philosophical Society.

807 St. Paul St.

WILLIAM HENRY HOWELL, PH. D., M. D., SC. D., LL. D.

Assistant Director and Professor of Physiology

A. B., Johns Hopkins University, 1881, Fellow, 1882-84, and Ph. D., 1884; LL. D., Trinity College (Conn.), 1901; Sc. D., Yale University, 1911; M. D. (Hon.), University of Michigan, 1890, LL. D., 1912; LL. D., Washington University, 1915; Associate and Associate Professor in Biology, Johns Hopkins University, 1885-1889; Lecturer and Professor of Physiology and Histology, University of Michigan, 1889-92; Associate Professor of Physiology, Harvard University, 1892-93; Member of the National Academy of Sciences and of the American Philosophical Society; Dean of the Medical Faculty, 1899-1911; Professor of Physiology, Medical School, 1893-1919.

232 W. Lanvale St.

ELMER VERNER McCOLLUM, PH. D.

Professor of Bio-Chemistry

A. B., University of Kansas, 1903, and A. M., 1904; Loomis Fellow, Yale University, 1905-1906, and Ph. D., 1906; Instructor, Assistant Professor, Associate Professor, and Professor of Agricultural Chemistry, University of Wisconsin, 1907-1917; Cutter Lecturer on Hygiene and Preventive Medicine, Harvard University, 1917-1918; Member of the National Academy of Sciences; Associate Member Royal Academy of Medicine of Belgium; Associate Editor, *Journal of Biological Chemistry* and *Journal of Dental Research*.

Talbot Rd., Windsor Hills.

RAYMOND PEARL, PH. D., SC. D., LL. D.

Professor of Biometry and Vital Statistics

A. B., Dartmouth College, 1899; Ph. D., University of Michigan, 1902; Sc. D., Dartmouth College, 1919; LL. D., University of Maine, 1919; Instructor in Zoology, University of Michigan, 1902-1906; in the University of Pennsylvania, 1906-1907; Biologist of the Maine Agricultural Experiment Station, 1907-1917; Chief of the Statistical Division of the United States Food Administration, 1917-1919; Member of the National Academy of Sciences and of the American Philosophical Society; Fellow of the American Academy of Arts and Sciences; Associate Editor of *Genetics* and of the *Journal of Experimental Zoology;* Chairman of the Editorial Board of the Proceedings of the National Academy of Sciences; Statistician of The Johns Hopkins Hospital.

401 Hawthorn Rd., Roland Park.

SIR ARTHUR NEWSHOLME, M. D.

Resident Lecturer in Charge of Public Health Administration

Knight Commander of the Bath (K. C. B.); M. D., University of London, 1881, and Certificate of Public Health, 1885; Medical Officer of Health, Clapham, 1885-1888; Medical Officer of Health, Brighton, 1889-1907; Milroy Lecturer, Royal College of Physicians, 1895; Fellow, Royal College of Physicians, 1898; Principal Medical Officer Local Government Board of England, 1908-1919; President, Society of Medical Officers of Health, 1900-1901; President, Epidemiological Society, 1907-1908; Member of Royal Commission on Venereal Diseases, of Army Sanitary Committee and of Interdepartmental Committees on Tuberculosis and on Dental Registration; Lieut. Col. R. A. M. C. (T); Member of Council of Imperial Cancer Fund; Crown Nominee General Medical Council, 1909-1919.

312 W. Monument St.

WADE HAMPTON FROST, M. D., SURGEON, U. S. P. H. S.*

Resident Lecturer in Charge of Epidemiology

A. B., University of Virginia, 1901, and M. D., 1903; Assistant Surgeon and Surgeon, United States Public Health Service, 1905-; Director, Bureau of Sanitary Service, American Red Cross, 1917.

113 W. Lanvale St.

ASSOCIATE PROFESSORS

WILLIAM WEBBER FORD, M. D., D. P. H.

Associate Professor of Bacteriology

A. B., Adelbert College, 1893; M. D., Johns Hopkins University, 1898, Instructor, Associate, and Associate Professor of Bacteriology, 1904-10, Associate Professor of Bacteriology and Hygiene, 1910-17; D. P. H., McGill University, 1900, and Fellow in Pathology, 1899-1901; Resident House Officer, Johns Hopkins Hospital, 1898-99; Fellow, Rockefeller Institute for Medical Research, 1901-02; Institute for Infectious Diseases, Berlin, 1901-02, and Johns Hopkins University, 1902-03; Hygienic Institute, University of Vienna, 1912-1913; Lecturer on Hygiene and Epidemiology, Johns Hopkins University, 1917—.

1124 N. Calvert St.

CARROLL GIDEON BULL, M. D.

Associate Professor of Immunology

S. B., Peabody College, 1907; M. D., University of Nashville, 1909; Pathologist to Lincoln Memorial Hospital, 1910-12; Assistant, Nelson Morris Institute for Medical Research, 1912-1913; Assistant and Associate in Pathology and Bacteriology, The Rockefeller Institute for Medical Research, 1913-1917; Major, Medical Corps, U. S. A., 1917-1918.

Montgomery Road, Windsor Hills

---

* Detailed to the School of Hygiene and Public Health by the Surgeon-General of the United States Public Health Service.

JOHN HERBERT GREGORY, S. B.

Associate Professor of Civil Engineering—in charge of Sanitary Engineering

S. B., Massachusetts Institute of Technology, 1895, Hydraulic and Sanitary Engineer, 1895-1911, Consulting Sanitary Engineer, 1911—; Member American Society of Civil Engineers.

3925 Canterbury Rd., Guilford.

DAVID KLEIN, PH. D.*

Associate Professor of Bio-Chemistry

A. B., and A. M., University of Illinois, 1906 and 1907; Instructor, University of Illinois, 1907; Ph. D., University of Wisconsin, 1910; Fellow, Assistant, Instructor and Associate Professor, University of Wisconsin, 1908-1914; State Chemist, Illinois, 1914-1918; Captain, Sanitary Corps, U. S. A., 1918-1919, and Major, 1919.

LOWELL JACOB REED, PH. D.

Associate Professor of Biometry and Vital Statistics

S. B. and S. M., University of Maine, 1907 and 1912, Ph. D., University of Pennsylvania, 1915; Assistant Professor of Mathematics, University of Maine, 1915-1917; Director of Bureau of Tabulation and Statistics, War Trade Board, Washington, 1917-1918; Associate in Biometry and Vital Statistics, Johns Hopkins University, 1918-1919.

Riderwood, Md.

ROBERT WILLIAM HEGNER, PH. D.

Associate Professor of Protozoology

S. B. and S. M., University of Chicago, 1903 and 1904; Ph. D., University of Wisconsin, 1908; Instructor, University of Michigan, 1908-1910, and Assistant Professor, 1910-1917; Johnston Scholar, Johns Hopkins University, 1917-1918, and Associate in Protozoology, 1918-1919.

218 Hawthorn Rd., Roland Park.

LECTURERS

WILLIAM TRAVIS HOWARD, M. D.

Lecturer in Biometry and Vital Statistics

M. D., University of Maryland, 1889; Graduate Student, Johns Hopkins University, 1889-1894; University of Prague, 1895; University of Munich, 1906-1907 and 1911; Professor of Pathology, Western Reserve University; Pathologist to the Lakeside and City Hospitals, Cleveland, 1894-1914; Bacteriologist Cleveland Board of Health, 1902-1914; Assistant Commissioner of Health, Baltimore, 1915-1919.

1122 N. Calvert St.

JOHN SAMUEL FULTON, M. D.

Lecturer in Public Health

A. B., St. Johns College, 1876; M. D., University of Maryland, 1881; Secretary State Board of Health, 1898-1907; and since 1912; Professor of State Medicine, University of Maryland, 1900-1918; Secretary-General Fifth International Congress on Tuberculosis, 1908; Secretary-General Fifteenth International Congress on Hygiene and Demography, 1912; Fellow Royal Society of Physicians of Hungary; Lieut.-Col. M. R. C., U. S. Army, Retired.

2211 St. Paul St.

---

* Resigned March 22, 1920.

CHARLES HAMPSON JONES, M. D.

Lecturer in Public Health

M. B., C. M., University of Edinborough, 1883; M. D. (Hon.), College of Physicians and Surgeons, Baltimore, 1889; Commissioner of Health, Baltimore, 1898-1900; Assistant Commissioner, 1900-1915; Chief of Bureau of Communicable Diseases, State Department of Health, 1915; Commissioner of Health, Baltimore, 1919; Professor of Hygiene and Preventive Medicine, University of Maryland and College of Physicians and Surgeons.

2529 St. Paul St.

ASSOCIATES

GEORGE HENRY ROBINSON, PH. D.

Associate in Bacteriology

A. B., Bates College, 1911; A. M., Brown University, 1912, and Ph. D., 1914; Research Laboratory, H. K. Mulford Company, 1914-1918.

3818 Barrington Road.

REYNOLD ALBRECHT SPAETH, PH. D.

Associate in Physiology

S. B., Haverford College, 1909; A. M., Harvard University, 1910, and Ph. D., 1913; Sheldon Fellow, Physiological Institute, Kiel, 1913-1914; Instructor in Biology, Clark College, 1914-15, and Yale University, 1915-18; Technical Assistant in Pharmacology, Hygienic Laboratory, U. S. Public Health Service, 1918.

212 Longwood Rd., Roland Park

JOHN RICE MINER, A. B.

Associate in Biometry and Vital Statistics

A. B., University of Michigan, 1913; Computer, Maine Agricultural Experiment Station, 1913-1917; Biometrician, Statistical Division, U. S. Food Administration, 1917-1918.

Towson, Md.

WILLIAM WALTER CORT, PH. D.

Associate in Helminthology

A. B., Colorado College, 1909; A. M. and Ph. D., University of Illinois, 1911 and 1914; Professor of Biology, Macalester College, 1914-1916; Assistant Professor of Zoology, University of California, 1916-1919; Consulting Helminthologist, State Board of Health, California, 1918-1919.

3608 Woodbine Av., West Forest Park.

WILLIAM CABLER MOORE, PH. D.

Associate in Immunology

S. B., Peabody College, 1903, Assistant in Chemistry and Physics, 1903-05; Instructor in Chemistry, University of Nashville, 1904-1906; Loewenthal Fellow, University of Chicago, 1907-1909, Ph. D., 1910; Instructor in Chemistry, Columbia University, 1909-1913; Research Chemist, National Carbon Company, 1913-1919.

4110 Fernhill Av.

ROSCOE RAYMOND HYDE, PH. D.

Associate in Immunology

A. B. and A. M., Indiana University, 1909; Ph. D., Columbia University, 1915; Assistant in Embryology, Indiana University, 1908-1909; Assistant Professor, Professor and Head of Department of Zoology and Physiology, Indiana State Normal School, 1909-1919; Lecturer in Genetics, Terre Haute Veterinary College, 1910-1918; Dyckman Fellow, Columbia University, 1912-1913; Fellow, Johns Hopkins University, 1918-1919.

4101 Penhurst Av.

ARTHUR LOUIS MEYER, M. D.

Associate in Physiology

A. B., Beloit College, 1905; M. D., University of Pennsylvania, 1909; Harvard Medical School, 1912-1913; Oxford University and Cambridge University, 1913; Assistant, Russell Sage Institute of Pathology, 1914-1915; Assistant and Associate, Rockefeller Institute for Medical Research, 1915-1919; Captain, Medical Corps, U. S. A., 1918-1919.

1109 St. Paul St.

MATHILDE KOCH, S. M.

Associate in Bio-Chemistry

S. B., University of Chicago, 1910, and S. M., 1912; Research Assistant in Bio-Chemistry, 1910-1914; Special Expert, Hygienic Laboratory, United States Public Health Service, 1914-1915; Assistant in Chemistry, Psychiatric Institute, New York State Hospital, 1915-1920, and Acting Assistant in Serology, 1918-1920.

2706 N. Charles St.

JANET HOWELL CLARK, PH. D.

Associate in Physiology

A. B., Bryn Mawr College, 1910; A. M., Johns Hopkins University, 1912, and Ph. D., 1913; Huff Fellow, Bryn Mawr College, 1913-1914, and instructor in Physics, 1914-1915; Sarah Berliner Fellow, 1915-1916; Instructor, Smith College, 1916-1917; Assistant in Pathology, Johns Hopkins University, 1917-1918, and Instructor in Physiology, 1918-1919.

232 W. Lanvale St.

FRED MARLIN MEADER, M. D.

Associate in Epidemiology

S. B., Wesleyan University, Conn., 1902, and S. M., 1905; M. D., Johns Hopkins University, 1909; Instructor, Assistant Professor and Associate Professor, Syracuse Medical College, 1909-1914; City Bacteriologist, Syracuse, N. Y., 1912-1914; Director, Division Communicable Diseases, New York State Department of Health, 1914-1920; Captain Medical Corps, U. S. A., 1917-1918, and Major, 1919.

1425 Eutaw Place

INSTRUCTORS

HELEN TRACY PARSONS, S. M.

Instructor in Bio-Chemistry

S. B., Kansas State Agricultural College, 1911; S. M., University of Wisconsin, 1916, and Assistant and Instructor in Home Economics, 1913-17.

1709 E. Fairmount Av.

SYLVIA LOUISE PARKER, A. B.

Instructor in Biometry and Vital Statistics

A. B., Mount Holyoke College, 1916, and Laboratory Assistant in Zoology, 1916-17; Assistant Biologist, Maine Agricultural Experiment Station, 1917-18.

Riderwood, Md.

PAUL EATON, M. D.

Instructor in Bacteriology

A. B., Allegheny College, 1899; M. D., University of Pittsburgh, 1903.

2100 Callow Av.

MARTHA KOEHNE, A. M.

Instructor in Bio-Chemistry

A. B., Ohio State University, 1908, and A. M., 1910; Chemist, State Department of Health, Columbus, Ohio, 1911-18.

3507 Powhatan Av.

NINA SIMMONDS, S. B.

Instructor in Bio-Chemistry

S. B., University of Wisconsin, 1915, Assistant in Agricultural Chemistry, 1915-1917; Assistant in Bio-Chemistry, Johns Hopkins University, 1917-1918.

511 N. Wolfe St.

PERCY DAVOL MEADER, PH. D.

Instructor in Bacteriology

Ph. B., Sc. M. and Ph. D., Brown University, 1914, 1916 and 1918; Assistant Bacteriologist, Providence Health Department, 1916-1918.

813 N. Howard St.

WILLIAM HAY TALIAFERRO, PH. D.

Instructor in Protozoölogy

S. B., University of Virginia, 1915; Assistant in Biology, Johns Hopkins University, 1915-1917, Adam T. Bruce Fellow, 1917-1918, Ph. D., 1918; Lieutenant, Medical Research Division, Chemical Warfare Service, Yale University, 1918; Johnston Scholar, Johns Hopkins University, 1919.

1001 N. Charles St.

FRANCIS METCALF ROOT, PH. D.

Teaching Fellow in Medical Entomology

A. B., Oberlin College, 1911, A. M., 1912; Graduate Student, Johns Hopkins University, 1912-1914, University Fellow, 1914-1915, Adam T. Bruce Fellow, 1915-1917, Ph. D., 1917; Captain, Infantry, U. S. A., 1917-1919.

2320 Callow Av.

LINDA BARTELS LANGE, M. D.

Instructor in Bacteriology

A. B., Bryn Mawr College, 1903; M. D., Johns Hopkins University, 1911; Interne, New York Infirmary for Women and Children, 1911-1912; Fellow in Pathology and Bacteriology, Rockefeller Institute for Medical Research, 1912-1914; Pathologist, Howard A. Kelly Hospital, Inc., 1914-1915; Instructor in Pathology, University of Wisconsin, 1915-1916; Assistant and Instructor in Medicine, Johns Hopkins University, 1916-1918, and Fellow in Bacteriology, 1918-1919.

804 N. Broadway

ASSISTANTS

AMY GEORGINA PHILLIPS

Assistant in Biometry and Vital Statistics

700 Gladstone Av.

CHESTER EARL RUTHERFORD

Assistant in Biometry and Vital Statistics

1524 Ellamont St.

MADGE THURLOW MACKLIN, M. D.

Assistant in Physiology

A. B., Goucher College, 1914; M. D., Johns Hopkins University, 1919; Fellow, American University, Washington, 1915-1919; Dean Van Meter Fellow, Goucher College, 1918-1919.

Belvedere and Denmore Avs.

CHARMIAN HOWELL, S. B.

Assistant in Biometry and Vital Statistics

S. B., Oakcliffe College, 1903.

2410 Maryland Av.

AGNES LATIMER BACON, A. B.

Volunteer Assistant in Biometry and Vital Statistics

A. B., Wellesley College, 1897.

2316 N. Calvert St.

FELLOWS BY COURTESY

CHARLES EDMUND SIMON, M. D.

A. B., Johns Hopkins Universtiy, 1888; M. D., Unversity of Maryland, 1890; Professor of Clinical Pathology, University of Maryland and College of Physicians and Surgeons, 1908-1920. *Protozoology.*

1734 Linden Av.

SADAMU YOKOGAWA, M. D.

M. D., College of Okayama, 1908; M. D., University of Kyoto, 1917; Professor of Pathology, Medical College, Taiwan, Formosa. *Helminthology.*

718 N. Charles St.

FELLOWS

MARY JANE HOGUE. West Chester, Pa. 821 *N. Charles St.*

A. B., Goucher College, 1905; Ph. D., University of Wurzburg, 1909. *Protozoology.*

FLORENCE POWDERMAKER. Baltimore, Md. 810 *Whitelock St.*

S. B., Pennsylvania State College, 1915. *Bio-Chemistry.*

IDA WILLIAMS PRITCHETT. Baltimore, Md. *Homewood Apts.*

A. B., Bryn Mawr College, 1914. *Immunology.*

RAYMOND CLEVELAND SALTER. Madison, Wis. 2100 *Callow Av.*

S. B., University of Wisconsin, 1915; S. M., Iowa State College, 1918. *Bacteriology.*

HOMER WILLIAM SMITH.

A. B., University of Denver, 1917. *Physiology.*

LUIS BARTUAL VICENS.* Valencia, Spain.

L. M., University of Valencia, 1915; M. D., University of Madrid, 1916. *Immunology.*

---

* Resigned February 1, 1920.

ROCKEFELLER FOUNDATION SCHOLARS

REGINALD MYERS ATWATER. Colorado Springs, Colo.
A. B., Colorado College, 1914; M. D., Harvard University, 1918.
2755 *W. North Av.*

WILLIAM CHARLES BOECK. Olivia, Minn. 2317 *Whittier Av.*
S. B., Carleton College, 1915; A. M. and Ph. D., University of California, 1916 and 1918.

CHARLES NELSON LEACH.*
A. B., Stanford University, 1909, and M. D., 1913.

KENNETH FULLER MAXCY. Baltimore, Md. 905 *Cathedral St.*
A. B., George Washington University, 1911; M. D., Johns Hopkins University, 1915.

---

* Not yet entered on his scholarship.

STUDENTS, 1919-1920

CANDIDATES FOR THE DEGREE OF DOCTOR OF PUBLIC HEALTH

CHARLES MAGEE ANDERSON. Ottawa, Can. 218 *W. Madison St.*
M. D. C. M., McGill University, 1916.

REGINALD MYERS ATWATER. Colorado Springs, Colo.
A. B., Colorado College, 1914; M. D., Harvard University, 1918. *Rockefeller Foundation Scholar.*
2755 *W. North Av.*

GARLAND HOWARD BAILEY. Giatto, W. Va. 1512 *N. Caroline St.*
S. B., West Visginia University, 1915; Fourth Year Medical Student, Johns Hopkins University.

ORVILLE GRAHAM BROWN. Washington, D. C. *Fort Howard, Md.*
M. D., Columbia University, 1900; Colonel, Medical Corps, United States Army.

JOHN COLLINSON. Baltimore, Md. 16 *W. Saratoga St.*
A. B., St. John's College, 1907; M. D., Johns Hopkins University, 1911.

JAMES THAMBIDURAI CORNELIUS. Madras, India. 601 *St. Paul St.*
A. M. and M. D., University of Cincinnati, 1919.

VALCOULON LEMOYNE ELLICOTT. Baltimore, Md. *Melvale, Md.*
S B., Massachusetts Institute of Technology, 1916; Fourth Year Medical Student, Johns Hopkins University.

REGINO PADUA Y GAERLAN. S. Juan, Union, P. I.
M. D. and D. T. M., University of the Philippines, 1915 and 1918.
900 *Madison Av.*

LIM, CHONG EANG. Fukien, China. 1008 *Madison Av.*
M. B. and S. B., Hong Kong University, 1916.

KENNETH FULLER MAXCY. Baltimore, Md. 905 *Cathedral St.*
A. B., George Washington University, 1911; M. D., Johns Hopkins University, 1915; *Rockefeller Foundation Scholar.*

DANIEL MURRAH MOLLOY. Managua, Nicaragua. *The Altamont.*
M. D., University of Nashville, 1908.

RALPH WELTY NAUSS. Greenville, Ohio. 110 *E. Preston St.*
S. B., Ohio State University, 1901; M. D., Northwestern University, 1905; D. P. H., University of Pennsylvania, 1916.

FRANK OLDT. Dayton, Ohio. 2409 *N. Calvert St.*
A. B., Otterbein College, 1901; M. D., Ohio Medical University, 1905.

GEORGE CALVIN PAYNE. Muskogee, Okla. 2622 *N. Calvert St.*
A. B., University of Missouri, 1910; M. D., Cornell University, 1912.

JOHN ARTHUR FRANKLIN PFEIFFER. Baltimore, Md.
M. D., Baltimore Medical College, 1908; A. M., George Washington University, 1916 and Ph. D., 1918.
1112 *N. Stricker St.*

GERALDO HORACIO DE PAULA SOUZA. São Paulo, Brazil.
Pharm. D., School of Pharmacy, São Paulo, 1908; M. D., Rio Janeiro, 1913.
1318 *McCulloh St.*

FRANCISCO BORGES VIEIRA. São Paulo, Brazil. 1318 *McCulloh St.*
B. Sc. e Lett., Gymnasium of São Paulo, 1911; M. D., Rio Janeiro, 1917.

CANDIDATES FOR THE DEGREE OF DOCTOR OF SCIENCE IN HYGIENE

CLENNIE ELSIE BAILEY. Terre Haute, Ind. 328 *E. 20th St.*
A. B., Indiana State Normal School, 1917. *Immunology.*

HOBART WILLIAM CROMWELL. Center Point, Ind.
A. B., Indiana State Normal School, 1917. *Immunology.*
4101 *Penhurst Av.*

MARY GOVER. Baltimore, Md. 600 *N. Carrollton Av.*
A. B., Goucher College, 1913; A. M., Johns Hopkins University, 1917. *Statistics.*

AMY JANE LEIGH. Cedar City, Utah. 1425 *Linden Av.*
S. B., Agricultural College of Utah, 1919. *Bio-Chemistry.*

JOHN RICE MINER. Baltimore, Md. *Towson, Md.*
A. B., University of Michigan, 1913. *Statistics.*

SAMUEL PITLIK. Worcester, Mass. 2206 *E. Baltimore St.*
A. B., Clark College, 1917; A. M., University of Chicago, 1918. *Statistics.*

IDA WILLIAMS PRITCHETT. Baltimore, Md. *Homewood Apts.*
A. B., Bryn Mawr College, 1914. *Immunology.* Fellow, 1919-1920.

RAYMOND CLEVELAND SALTER. Madison, Wis. 2100 *Callow Av.*
S. B., University of Wisconsin, 1915; S. M., Iowa State College, 1918. *Bacteriology.* Fellow, 1919-1920.

HOMER WILLIAM SMITH. Denver, Colo. 3724 *Greenmount Av.*
A. B., University of Denver, 1917. *Physiology.* Fellow, 1919-1920.

CANDIDATES FOR THE DEGREE OF BACHELOR OF SCIENCE IN HYGIENE

EDITH MARGARET JANE BARRETT. Memphis, Tenn. 4025 *Belle Av.*
Student in Tulane University, 1915-1917 and Louisiana State Medical College, 1917-1918.

CHARLES RAYMOND COX. Baltimore. Md. *Lutherville, Md.*
Student in Johns Hopkins University, 1919.

ELLEN BOYDEN FINLEY. Albany, N. Y. *Homewood Apts.*
A. B., Vassar College, 1916.

WINIFRED ANDERSON GOODWIN. Gross Ile, Mich. *Cecil Apts.*
A. B., University of Michigan, 1914.

MARIE LOUISE KOCH. Baltimore, Md. 2524 *Maryland Av.*
Student, Johns Hopkins University, 1918-1919.

EDITH EVELYN NICHOLLS. Baltimore, Md. 3409 *Guilford Terr.*
A. B., Smith College, 1919.

ELLA HUTZLER OPPENHEIMER. Baltimore, Md. 1411 *Eutaw Place*
A. B., Goucher College, 1918.

DAVID HENRY SHELLING. Hartford, Conn. 503 *N. Wolfe St.*
Student, Loyola University, 1917-1918 and Trinity College, 1918-1919.

JEAN CHIRON SNYDER. Elyria, Ohio. 817 *Park Av.*
A. B., Wellesley College, 1918.

SPECIAL STUDENTS

ANNA DETRING SCHULTZE ABERCROMBIE. Baltimore, Md.
M. D., Woman's Medical College of Baltimore, 1908. *Public Health Administration.*
1316 *N. Charles St.*

AGNES LATIMER BACON. Baltimore. Md. 2316 *N. Calvert St.*
A. B., Wellesley College, 1897. *Statistics.*

ZDENEK BERNARD. Prague, Czechoslovakia. 212 *W. Franklin St.*
M. D., University of Prague, 1914. *Immunology, Physiological Hygiene.*

MAGDALEN BURGER. Baltimore, Md. 1811 *W. North Av.*
Statistics.

LILLIAN CROMBIE BURROUGHS. Baltimore, Md. 2313 *E. Federal St.*
A. B., Goucher College, 1917. *Metabolism and Diet.*

FRED CORNELIUS CALDWELL. Chicago, Ill.
S. B., University of Chicago, 1909; M. D., Rush Medical College, 1912. *Medical Zoology.*

ANNA HELEN EMILY DORSEY. Ellicott City, Md. *Catonsville, Md.*
Bacteriology.

KAREL DRIML. Chocen, Czechoslovakia. 212 *W. Franklin St.*
M. D., University of Prague, 1914. *Bacteriology, Protozoology, Public Health Administration, Statistics.*

TAGE ULRICH HOLTON ELLINGER. Copenhagen, Denmark.
S. M., University of Copenhagen, 1917. *Statistics.*
Ruxton, Md.

MARIAN GIBSON. Chicago, Ill. 1015 *Cathedral St.*
Statistics.

JOHN HOMER HAMILTON. Stillwater, Okla.
S. B., Oklahoma Agricultural College, 1910; M. D., Harvard University, 1916. *Medical Zoology.*

WALTER CARL HAUSHEER. Norwich, N. Y.
M. D., University of Pennsylvania, 1918. *Medical Zoology.*

CHARMIAN HOWELL. Atlanta, Ga. 2410 *Maryland Av.*
S. B., Oakcliffe College, 1903. *Statistics.*

JAROSLAV HULKA. Strmilov, Czechoslovakia. 704 *Madison Av.*
M. D., University of Prague, 1919. *Public Health Administration.*

FERNALD EVERETT HULSE. Arlington, Mass.
S. B., Harvard University, 1915. *Medical Entomology, Protozoology.*

EDGAR ALLEN JONES. Cambridge, Md. 16 *W. Saratoga St.*
M. D., Baltimore Medical College, 1893. *Epidemiology.*

VICTOR EMANUEL LEVINE. Omaha, Nebraska.
A. B., College of the City of New York, 1909; A. M., Columbia University, 1911, and Ph. D., 1914. *Chemical Hygiene* (July to September, 1919).

HERTHA LICHTENSTEIN. Winona, Minn. 1510 *Eutaw Place*
Bacteriology, Immunology.

EDGAR SMITH LINTHICUM. Baltimore, Md. 2729 *St. Paul St.*
M. D., Baltimore Medical College, 1906. *Epidemiology, Public Health Administration, Sanitary Engineering.*

ELIZABETH MOORE MCKINNEY. Pittsburgh, Pa. 1225 *Madison Av.*
S. B., Wilson College, 1895; M. D., Johns Hopkins University, 1901. *Helminthology, Medical Entomology, Protozoology.*

MARGARET BAXTER MACDONALD. State College, Pa.
A. B., Mount Holyoke College, 1898; Ph. D., Bryn Mawr College, 1902. *Chemical Hygiene.*
917 *W. Franklin St.*

CHESTER LEA MAGEE. Los Angeles, Cal. *Coca Cola Bldg.*
A. B., Stanford University, 1895, and A. M., 1896; M. D., Johns Hopkins University, 1899. *Medical Entomology.*

FLORENCE KING PAYNE. Muskogee, Okla. 2622 *N. Calvert St.*
M. D., Syracuse University, 1909. *Helminthology, Protozoology, Sanitary Engineering.*

LOUIS JAMES PETRITZ. Rockford, Ill. 905 *St. Paul St.*
A. B., Holy Cross College, 1914; M. D., Northwestern University, 1918. *Medical Zoology.*

AMY GEORGINA PHILLIPS. Baltimore. Md. 700 *Gladstone Av.*
Statistics.

BLANCHE POOLER. Stillwater, Maine. 157 *W. Lanvale St.*
Statistics.

FLORENCE POWDERMAKER. Baltimore, Md. 810 *Whitelock St.*
S. B., Pennsylvania State College, 1915. *Histology.* Fellow 1919-1920.

HELEN MARY POWELL. Philadelphia, Pa. 1203 *Madison Av.*
Bacteriology, Immunology, Parasitology.

ALICE RAYMOND. Leominster, Mass. 709 *St. Paul St.*
A. B., Middlebury College, 1910. *Statistics.*

MARGARET IRMA RILEY. Elkridge, Md. *Elkridge, Md.*
Statistics.

ROBERT HICKMAN RILEY. Cumberland, Md. 16 *W. Saratoga St.*
S. B., University of Oklahoma, 1909, and M. D., 1915. *Bacteriology, Epidemiology.*

LEONCIO LOPEZ RIZAL. Laguna, P. I. 900 *Madison Av.*
A. B., Ateneo de Manila, 1903; M. D., University of the Philippines, 1909. *Epidemiology, Statistics.*

EDWIN WILLIAM SCHULTZE. Roanoke, Indiana. 515 *N. Wolfe St.*
S. B., Winona College of Agriculture, 1913; A. B., University of Michigan, 1914; M. D., Johns Hopkins University, 1917. *Protozoology.*

OLIVE CUSHING SMITH. Baltimore, Md. 4 *E. Biddle St.*
Statistics.

FRED LOWE SOPER. Hutchinson, Kansas.
A. B., University of Kansas, 1914, and S. M., 1916; M. D., Rush Medical College, 1918. *Medical Zoology.*

REBEKAH SUGAR. Baltimore. Md. 140 *E. Clement St.*
Statistics.

CHARLES CUMMING TUMBLESON. Crownsville, Md.
M. D. *Immunology* (April to August, 1919).

LUIS BARTUAL VICENS. Valencia, Spain. 4101 *Penhurst Av.*
L. M., University of Valencia, 1915; M. D., University of Madrid, 1916. *Immunology.* Fellow 1919-1920.

RICARDO RIVAS VIDES. San Salvador City. 9 *E. Centre St.*
S. B., El Salvador Institute, 1906; M. D., El Salvador University, 1916. *Bacteriology, Immunology.*

JOHN WILLIAM VISHER. Chicago, Ill.
A. B., University of South Dakota, 1914, and A. M., 1915; M. D., Rush Medical College, 1917. *Medical Zoology.*

CORYDON MCALMONT WASSELL. Little Rock, Arkansas.
M. D., University of Arkansas, 1909. *Medical Zoology.*
2721 *N. Charles St.*

CLARK HARVEY YEAGER. Wilkesbarre, Pa.
M. D., University of Pennsylvania, 1911. *Medical Zoology.*

STUDENTS REGISTERED IN OTHER DEPARTMENTS TAKING SPECIAL COURSES

Leslie Carrington Beard, A. B., Department of Philosophy, *Bacteriology.*

Sheonan Cheer, A. B., Department of Medicine, *Immunology.*

Archibald Sweetland Dean, S. B., Department of Medicine, *Bio-Chemistry.*

Benjamin Simon Neuhausen, A. B., Department of Philosophy, *Bacteriology.*

Flora Dodler Sutton, A. B., Department of Philosophy, *Statistics.*

Charlotte Condict Van Winkle, A. B., Department of Medicine, *Public Health Administration.*

John Paul Visscher, A. B., Department of Philosophy, *Parasitology, Protozoölogy.*

SUMMARY

Candidates for the degree of Dr. P. H.	17
Candidates for the degree of Sc. D. in Hygiene	9
Candidates for the degree of S. B. in Hygiene	9
Special Students	49
Total	84

ADVISORY BOARD OF THE FACULTY

FRANK J. GOODNOW, *President*

CARROLL G. BULL	WILLIAM H. HOWELL
WILLIAM W. FORD	*Assistant Director*
WADE H. FROST	ELMER V. MCCOLLUM
JOHN H. GREGORY	ARTHUR NEWSHOLME
ROBERT W. HEGNER	RAYMOND PEARL

WILLIAM H. WELCH, *Director*

By resolution of the Board of Trustees this Board is "instructed to report to the Trustees from time to time their suggestions and to prepare and carry forward the proper arrangements for the instruction and graduation of students in the School."

EXECUTIVE COMMITTEE

THE PRESIDENT OF THE UNIVERSITY

THE DIRECTOR — THE ASSISTANT DIRECTOR

LIBRARY COMMITTEE

ELMER V. MCCOLLUM	GEORGE H. ROBINSON
Chairman	REYNOLD A. SPAETH
LOWELL J. REED	ELIZABETH S. THIES

THE LIBRARIAN OF THE UNIVERSITY, *ex officio*

COMMITTEE ON APPLICATIONS

CARROLL G. BULL	ROBERT W. HEGNER
WILLIAM W. FORD	WILLIAM H. HOWELL
	Chairman

COMMITTEE ON PUBLICATIONS

ROBERT W. HEGNER	WILLIAM H. HOWELL
Chairman	RAYMOND PEARL

OTHER OFFICERS

MARY LOUISE DURHAM, *Secretary*	1700 *St. Paul St.*
ELIZABETH S. THIES, *Librarian*	2122 *Chelsea Av.*
ETHEL NORRIS, *Artist*	1925 *Linden Av.*

GENERAL STATEMENT AND REQUIREMENTS FOR ADMISSION

SCHOOL OF HYGIENE AND PUBLIC HEALTH

GENERAL STATEMENT

The need of larger and better opportunities in this country for training and investigation in the science and art of Hygiene and Public Health has long been recognized. With the rapid advance in our knowledge of the causes and mode of spread of infectious diseases has come a correspondingly increased power of prevention which has greatly stimulated interest in preventive medicine and has strengthened the demands for improved standards of public health organization and administration. Especially urgent is the need for men and women trained to undertake work in this field which already offers attractive careers for those properly qualified, and will offer opportunities in larger measure as the necessity for such training is more widely appreciated. It was a source of great gratification to the Johns Hopkins University to be enabled to open in October, 1918, a School of Hygiene and Public Health designed to meet the need thus briefly indicated.

In June, 1916, the Rockefeller Foundation of New York notified the President of the Johns Hopkins University that the Foundation was prepared "to co-operate with the University in the establishment of a School of Hygiene and Public Health for the advancement of knowledge and the training of investigators, teachers, officials and other workers in these fields."

This offer was accepted by the University, and on June 12, 1916, the President of the University made the formal announcement that the Board of Trustees had authorized the establishment of a School of Hygiene and Public Health as part of the University. Dr. William H. Welch was appointed

Director and Dr. William H. Howell was named to assist in the work of organization.

The history of the events leading up to this action is in brief as follows: On October 16, 1914, the General Education Board called a conference of leading authorities in public health work to consider the general question of the training of qualified sanitarians and public health officials. At the request of this conference Dr. W. H. Welch and Mr. Wickliffe Rose undertook to prepare a plan for an institute of public health and hygiene for submission to the General Education Board and the members of the conference. This report was made to the General Education Board on May 27, 1915. Subsequently, on the instruction of the Board, a committee was appointed to determine where such an institution could be located most advantageously. Acting upon the information gathered by this committee the Rockefeller Foundation decided "largely by reason of the facilities, organization and ideals of its Medical School," to establish a School of Hygiene and Public Health at the Johns Hopkins University.

The main objects of the School are to establish courses for the training of qualified persons for public health work, to promote investigative work in hygiene and preventive medicine and provide opportunities for the training of investigators in these subjects, and to develop adequate means for the dissemination of sound hygienic knowledge. Special and mutual advantages arise from the close relationship between the School and the International Health Board of the Rockefeller Foundation, particularly in field work and in the opportunities for investigation and training in tropical medicine and the control of special diseases. As outlined at present the work of the School is organized under the following divisions: a department of bacteriology, serology and immunology; a department of medical zoölogy; a department of epidemiology; a department of biometry and vital statistics; a department of chemical hygiene; a department of physiological hygiene; a department of public health

organization and administration. Provision is made for practical work in connection with federal, state and municipal departments of health and for instruction in sanitary engineering, infectious and occupational diseases and vocational, mental and social hygiene. Men and women are admitted on the same terms.

A suitable lot of land has been purchased at the corner of Monument and Wolfe streets, immediately adjacent to the grounds of the Medical School and the Johns Hopkins Hospital. Plans have been made for the erection of buildings upon this lot to contain the laboratories, library, museum and offices of the School. Pending the erection of these buildings the School has been established in a large laboratory, 310-312 West Monument street, formerly occupied by the physical department of the Johns Hopkins University. This building and some of the adjacent laboratories formerly occupied by the University have been completely renovated and equipped for the use of the School. Instruction began October 1, 1918.

COURSES AND DEGREES

I. Course leading to the degree of Doctor of Public Health (Dr. P. H.):

The purpose of this course is to furnish instruction in public health knowledge and methods to those who have a liberal education and a fundamental training in medicine. The course will consist of specified work throughout two years, together with a summer spent in field work in some organized public health service. The specified work comprises courses in the following subjects: advanced bacteriology and immunology; the chemical and bacteriological analysis of foods, water and sewage; statistical methods; sanitary and administrative law; nutritional and environmental hygiene; the history of hygiene; medical zoölogy; epidemiology; the administrative control of disease; sanitation and public health

organization; sanitary engineering, and social and mental hygiene. It is understood that these requirements may be modified to suit the needs or aptitudes of special students. An essay based upon individual study of some problem or subject in hygiene is to be submitted before receiving the degree. Graduates in this course should be prepared to serve as public health officials in those important positions in which the health of large communities is involved and in which relations must be maintained both with the medical profession and the general public. The following groups of students will be accepted as candidates for this degree:

a. Graduates of approved medical schools who have had a liberal education as evidenced by a degree in arts or science, or its equivalent. These candidates will be required to pursue a two-years' course together with one summer of practical work in an organized public health service.

b. Students who have completed satisfactorily three years of the course in an approved medical school and who have had a liberal education as evidenced by a degree in arts or science, or its equivalent. Arrangements have been made with the Johns Hopkins Medical School whereby students in this school can pursue a combined course in medicine and in public health of such a character that a student may receive his degree in medicine on the completion of four years' work, and his degree in public health after an additional or fifth year of work in the School of Hygiene and Public Health together with a summer spent in practical field work. In their fourth year these students may fill all of their elective hours with subjects taken from the curriculum of the School of Hygiene and Public Health. A combined course of a similar character may be obtained with other medical schools by special arrangement.

II. Courses leading to the degree of Doctor of Science in Hygiene:

The underlying object in the arrangement of these courses is to train specialists in the various departments of public health work, and to afford opportunity for those not graduated in medicine to undertake public health work. The field is large and varied. In addition to general administrative officials and those immediately occupied with the protection of the community from epidemics and insanitary conditions, it is obvious that specially trained individuals are needed in such matters as school hygiene, occupational hygiene, statistical investigations, nutritional problems, etc., both for the purpose of adding to knowledge and for giving special services.

For work of this character previous training in the physical and biological sciences is more essential than acquaintance with clinical methods, and it is proposed, therefore, in planning these courses, to base them upon a liberal education, and an adequate training in physics, chemistry, biology, and the medical sciences. After matriculation in the School each candidate will be expected to absolve certain courses of a basic character, but for the most part his time will be devoted to advanced work. This latter part of the work must include a special investigation of some problem the results of which are to be presented in the form of a dissertation. In view of the special requirements and the time implied in completing successfully a definite research, it may be assumed that after obtaining the bachelor's degree at least three years of work will be necessary to meet all the requirements of the degree of Doctor of Science in Hygiene.

To be accepted as a candidate for this degree the following requirements must be fulfilled.

a. A degree in arts or science or its equivalent, as evidence of a liberal education.

b. Certificates of the satisfactory completion of adequate courses in chemistry, physics, and biology.

c. Certificates of the satisfactory completion of adequate courses in anatomy, physiology, and pathology.

d. In exceptional cases, on the recommendation of the head of a department, a candidate may be accepted who offers in place of (c) satisfactory evidence of special training of an advanced character in subjects fundamental to his main field of work.

After acceptance as a candidate the student will be assigned for advice and guidance to the head of the department in which he will specialize. In order to be recommended for the degree the candidate must pass satisfactory written and oral examinations in his major subject and must present a dissertation, in prescribed form, embodying the results of an independent investigation. This dissertation must be presented to the Director, who will refer it for examination to a special committee. If the report of the committee is favorable the candidate will be asked to appear before the faculty for the oral examination. The dissertation must be published in whole or in part within a year after its acceptance by the faculty.

III. Course leading to the degree of Bachelor of Science in Hygiene:

It is evident that if public health work in this country develops along the lines followed at present there will soon be established in every community an organized service, including laboratory facilities, for the control of the health affairs of that community. For such services trained workers should be provided who can undertake the necessary work connected with the chemical and bacteriological examination of water, sewage, foods, excretions, blood; the preparation of bacteriological and serological material; sanitary inspections, etc. There is also a demand for workers, competent in statistical and actuarial lines, by health departments and by the medical and actuarial departments of large insurance companies. Courses have been established for the training of such work-

ers leading to the degree of Bachelor of Science in Hygiene. These courses require two years of work in the School of Hygiene and Public Health and the Medical School. They are based upon a liberal education and an adequate knowledge of physics, chemistry, and biology such as can be obtained in two years of a college course. The first year's work consists of courses in physiology, bacteriology, anatomy and histology, sanitary chemistry and physiology as applied to hygiene. The second year's work consists of courses in advanced bacteriology, immunology, parasitology, nutritional hygiene, sanitary engineering, pathology, statistics and epidemiology. The arrangements of these courses is such as to permit some specialization. The student may select work preparatory to a position in laboratory diagnosis, or to a position along statistical and epidemiological lines. The requirements for matriculation in these courses are as follows:

a. Certificate of matriculation in an approved college and the completion of at least two years of college work.

b. Certificates of adequate courses in biology, physics, and chemistry, including organic chemistry.

By an adequate course is meant in physics one year of college work covering approximately 100 hours of laboratory and 100 hours of class work; in biology one year of college work covering approximately 150 hours of laboratory and 100 hours of class work; in chemistry one to two years of college work covering approximately 250 hours of laboratory and 120 hours of class work.

IV. Course leading to a Certificate in Public Health:

A certificate in public health may be awarded to qualified persons after one year of residence and the satisfactory completion of lectures and laboratory courses equivalent in amount to the work of a full academic year. The courses followed may vary according to the individual need of the applicant, but they must include practical work in epidemi-

ology and in such other courses as may be approved by the faculty.

Candidates for these certificates must be graduates in medicine of an approved medical school or graduates in arts or science who can furnish satisfactory evidence of previous training in the physical and medical sciences.

SPECIAL STUDENTS

An opportunity to use the facilities of the School will be granted to the following groups of special students not registered as candidates for a degree:

1. Public health officers who may wish to take one or more lectures or laboratory courses, or engage in the study of some special problem.

2. Other qualified persons who may wish to attend special courses or undertake research work and whose qualifications receive the formal approval of the faculty of the School.

THE DE LAMAR LECTURES IN HYGIENE

A series of popular lectures in personal and public hygiene will be arranged each session. The object of these lectures is to bring before the public the general facts and points of view of modern hygiene, with the hope that in this way the School may serve as a center for the distribution of useful knowledge in all matters pertaining to sanitation and preventive medicine. These lectures are supported from the fund bequeathed to the Medical School by Joseph R. De Lamar.

The course given during the session of 1919-1920 was as follows:

Sir Arthur Newsholme, M. D., K. C. B.,
Resident Lecturer in Public Health Administration
Late Principal Medical Officer of the Local Government Board of England
on
Public Health Pioneers and Progress
Monday, October 13

Col. Georges Dreyer, M. D.
Professor of Pathology, University of Oxford,
on
Physical Fitness and Vital Capacity
Wednesday, October 22

Dr. Howard A. Kelly,
Emeritus Professor of Gynecology, Johns Hopkins University,
on
Some Knowledge of Fungi Essential to the Public Hygienist
Monday, November 3

Dr. Thomas M. Legge, C. B. E.
H. M. Medical Inspector of Factories, Great Britain,
on
Industry under the Medieval Craft Guilds
Monday, November 17

Mr. Lawrence Veiller
Secretary and Director, National Housing Association
on
Housing and Health
Monday, November 24

Sir Arthur Newsholme, M. D., K. C. B.
on
The Increasing Socialization of Medicine
Monday, December 15

Dr. William F. Snow
Executive Secretary of the American Social Hygiene Association
on
The Control of Venereal Diseases
1—The Basis for Combating Syphilis and Gonococcus Infections, Tuesday, December 16
2—The Medical Attack, Wednesday, December 17
3—The Legal Attack, Thursday, December 18
4—Educational Attack, Friday, December 19

Dr. Victor C. Vaughan
Professor of Hygiene and Physiological Chemistry, University of Michigan,
on
The Influenza Epidemic of 1918

Major-General William C. Gorgas
Late Surgeon-General, U. S. A., Director of the Yellow Fever Commission of the International Health Board, Rockefeller Foundation,
on
The Eradication of Yellow Fever with Especial Reference to Recent Work in South America
Monday, January 12

Mr. Irwin S. Osborn
Consulting Engineer, Cleveland, Ohio,
on
The Collection and Disposal of Household Waste
Monday, January 19

Sir Arthur Newsholme, M. D., K. C. B.
on
Neo-Natal Mortality
Monday, February 2

Dr. Frederic S. Lee
Professor of Physiology, Columbia University,
on
Some Problems of Industrial Physiology
Monday, February 16

Dr. Allen W. Freeman
Commissioner of Health, State of Ohio,
on
Public Health Administration of Ohio
Monday, March 8

Dr. Charles P. Emerson
Professor of Medicine and Dean, Indiana University School of Medicine
on
Environmental Medicine
Monday, March 29

Dr. Thomas W. Salmon
Medical Director, The National Committee for Mental Hygiene
on
The Field of Mental Hygiene
Monday, April 12

Dr. J. Whitridge Williams
Professor of Obstetrics, Johns Hopkins University,
on
Relation of Venereal Diseases to the Child Bearing Process
Monday, April 19
and
Monday, April 26

Dr. Thomas A. Starkey
Strathcona Professor of Hygiene, McGill University,
on
The Teaching of Hygiene in Medical Schools
Monday, May 3

Dr. J. Morris Slemons
Professor of Obstetrics and Gynecology, Yale University,
on
The Nutrition of the Fetus
Monday, May 10

Course in School Hygiene

In addition to this series of general lectures a special course of lectures in school hygiene, dealing particularly with the subjects of nutrition and diet, has been arranged for the summer course of the Johns Hopkins University, given at Homewood in July and August. This course is given under the direction of Professor McCollum, and is supported from the De Lamar Fund.

SCHOLARSHIPS

A certain number of scholarships carrying free tuition will be awarded annually by the Trustees of the University upon the recommendation of the faculty. These scholarships will be awarded for one year, but may be renewed for a second year. Applications may be made to the Director of the School.

FELLOWSHIPS

Six research fellowships carrying each a stipend of $1,000, and exemption from all charges for tuition are awarded annually by the Trustees of the University upon the recommendation of the faculty. The conditions upon which these fellowships are awarded are as follows:

1. The applicant must have received his doctor's degree in medicine, science, philosophy or public health, or furnish evidence of experience and meritorious service in scientific work.
2. The holder of a fellowship must give his time primarily to investigative work, approved by some member of the staff of the School, and must be in residence during the academic year, unless permission is granted to him by the faculty to carry on his work elsewhere.
3. The application should be made prior to March 1st, in writing, addressed to the Director of the School of Hygiene and Public Health.

REGISTRATION AND CALENDAR

All students upon entering must report at the Director's office for registration and payment of fees.

The academic year is the same as in other departments of the University (see page 5).

Instruction begins in the fall on the Tuesday nearest to the first of October. The graduating exercises are held on the third Tuesday of June. There are short recesses at Christmas and Easter.

Since instruction is arranged on a trimestral basis, it is possible for students to enter the School at the beginning of any trimester, and to graduate at the end of any trimester. Formal bestowal of degrees takes place at the University Commencement in June and on Commemoration Day, February 22nd.

TUITION

The charge for tuition in the courses leading to a degree or a certificate will be $250 per annum, payable at the office of the Director, in three instalments, one at the beginning of each trimester. For students taking special courses the charge for one trimestral course, including laboratory work, will be $50.00. The charge for shorter courses will be arranged on application.

For further information address the Director of the School of Hygiene and Public Health, Johns Hopkins University, 310-312 W. Monument Street, Baltimore, Md.

DEPARTMENTS OF INSTRUCTION AND ANNOUNCEMENT OF COURSES

DEPARTMENTS OF INSTRUCTION

BACTERIOLOGY

William W. Ford, M. D., Associate Professor.
George H. Robinson, Ph. D., Associate.
Paul Eaton, M. D., Instructor.
Percy D. Meader, Ph. D., Instructor.
Linda B. Lange, M. D., Instructor.
Raymond C. Salter, S. B., Fellow.

1. Sanitary Bacteriology. Dr. Meader, Dr. Lange. This course is designed to give students a fundamental training in bacteriology with special reference to sanitary bacteriology. It includes the making of the ordinary culture media, the preparation and use of stains, the microscopic study of organisms, and the methods of isolating and identifying the more common pathogenic and non-pathogenic bacteria. The methods of examining water, milk, sewage, and foods are considered in detail.

Students who have received training in chemistry, physics, and biology, are admitted to this course, and its completion qualifies students for the course in public health bacteriology.

2. Public Health Bacteriology. Dr. Ford, Dr. Robinson, Dr. Eaton. This course is designed especially for the training of students in the modern bacteriological methods employed in the diagnosis of the acute respiratory diseases, in the study of the infections of the intestinal tract, and in the examination of water, milk, and foods for their sanitary quality. It includes the study of the pneumococcus, the influenza bacillus, and the hemolytic streptococcus from sputum, the diphtheria bacillus from the secretions of the nose and throat, and the meningococcus from the spinal fluid. The newer methods for the cultivation of the tubercle bacillus from sputum are demonstrated, and the isolation of the

typhoid, paratyphoid, and dysentery bacilli practiced as far as possible upon actual cases of disease. The standard methods employed in the examination of water, milk, and food are demonstrated. Only those students will be admitted to this course who can present satisfactory evidence of proper training in elementary bacteriology.

3. Research in Bacteriology. Dr. Ford. Opportunity will be provided for advanced work and research in bacteriology in a variety of fields. Qualified students will be given problems to work out under the immediate supervision of the Associate Professor of Bacteriology, and opportunities will be offered to candidates for advanced degrees to prepare theses on special topics.

IMMUNOLOGY

Carroll G. Bull, M. D., Associate Professor.
Roscoe R. Hyde, Ph. D., Associate.
William C. Moore, Ph. D., Associate.
Ida W. Pritchett, A. B., Fellow.
Luis Bartual Vicens, M. D., Fellow.*

1. Immunology I. Dr. Hyde and Dr. Moore. The course consists of fifteen hours a week devoted to laboratory work and three hours to lectures and conferences during one trimester. The laboratory work is designed to give students training in (1) serological reactions, (2) the preparation of the materials used in these reactions, (3) the preparation of bacterial and virus vaccines to be used in prophylaxis and therapy, and (4) the production and standardization of immune sera—anti-microbic and antitoxic. Special attention is given to practical diagnostic methods such as the Widal test, the Wassermann reaction, the colloidal gold reaction, etc.

2. Immunology II. Prerequisite, Immunology I or its equivalent. Dr. Bull and other members of the staff. The course consists of fifteen hours a week of laboratory work and

* Resigned February 1, 1920.

three hours of lectures and conferences. The work consists of a study of the nature of serological reactions and of the principles and theories of infection and resistance. The laboratory work is designed to demonstrate the mechanism of immunological reactions and of the interactions of infecting organisms and the infected host, considering, on the one hand, how bacteria and other parasites invade the host and produce disease, and, on the other hand, how the host resists invasion and overcomes infection. The latter part of the course is devoted to the application of immunological methods and principles in the diagnosis, prevention and treatment of disease.

3. Research in Immunology. Dr. Bull, Dr. Hyde and Dr. Moore. Candidates for advanced degrees and other qualified students have the opportunity of carrying out investigations on problems pertaining to immunity. The member of the staff under whose supervision the work is done depends upon the nature of the problem.

SANITARY ENGINEERING

John H. Gregory, S. B., Associate Professor of Civil Engineering.

The course in sanitary engineering is given at Homewood in the Department of Civil Engineering, and will consist of nine hours a week, during one trimester, divided into lectures, conferences, laboratory and field work, and supplemented by reading. The course is designed to give the student a comprehensive general view of modern sanitary engineering practice. The time will be devoted largely to the main topics of water supply, water purification, sewerage and sewage disposal, with a discussion of modern methods of collecting and disposing of garbage and other municipal wastes. The laboratory exercises will include the study and discussion of existing sanitary works from photographs and working drawings, together with inspection trips in the field to typical water purification and sewage disposal works.

CHEMICAL HYGIENE

Elmer V. McCollum, Ph. D., Professor.
David Klein, Ph. D., Associate Professor.*
Mathilde Koch, S. M., Associate.
Helen T. Parsons, S. M., Instructor.
Martha Koehne, A. M., Instructor.
Nina Simmonds, S. B., Instructor.
Florence Powdermaker, S. B., Fellow.

Chemical Methods Applied to Hygiene. Under the direction of Professor E. V. McCollum and Associate. The course will consist of fifteen hours of laboratory work and three conferences weekly during one trimester. It will include a study of the composition of the more important foods, the changes undergone in cooking, preserving, storing, etc., and the nature of the substances used in adulterations. Practice will be given in the methods of water analysis, chemical treatment of waters, filtration, etc. Students must have had courses in qualitative, quantitative and organic chemistry before being eligible to the course.

Animal Nutrition. Dr. E. V. McCollum. Three lectures or conferences weekly during one trimester. In this course will be given assigned readings upon which written or oral reports will be required. The more important researches which have contributed to present day knowledge in this field are studied. The results of animal experimentation are correlated with human experience as far as possible. The special dietary properties of our natural food products are discussed and the evidence of the relation between the diet and health of certain large groups of people is presented.

Chemical Hygiene, Advanced. Dr. E. V. McCollum. Those who have the necessary preliminary training and who desire to do work of a special nature will be received at any time during the academic year.

Journal Club. One hour weekly during the year. Those

* Resigned March 22, 1920.

who take part in this course are expected to report from time to time upon papers relating to chemical hygiene which appear in current journals.

MEDICAL ZOOLOGY

ROBERT W. HEGNER, PH. D., Associate Professor of Protozoology.
WILLIAM W. CORT, PH. D., Associate in Helminthology.
WILLIAM H. TALIAFERRO, PH. D., Instructor in Protozoology.
FRANCIS M. ROOT, PH. D., Teaching Fellow in Medical Entomology.
MARY J. HOGUE, PH. D., Fellow.

1. PROTOZOÖLOGY. Drs. Hegner and Taliaferro. Three days per week during one trimester. The course consists of three lectures or conferences and fifteen hours of laboratory work per week. The aims are (1) to gain a general knowledge of the biology of the protozoa; (2) to become acquainted with pathogenic species and the diseases caused by them; (3) to learn methods of preventing the spread of pathogenic species by the control of the agents of transmission; (4) to acquire a knowledge of the problems presented by pathogenic species and the ability to solve them; thus laying the foundation necessary for carrying on original investigations, and making it possible to take charge of public health work in protozoölogy in any community, and to direct campaigns in cases of epidemics.

The lectures and conferences are devoted to the presentation and discussion by instructors and students of information obtained from original observations, from current literature, and from text and reference books.

In the laboratory the four classes of protozoa are considered separately, involving the study (1) of typical free-living species, (2) of species parasitic in lower animals and (3) a more detailed examination of species parasitic in man. Methods are demonstrated for collecting, cultivating and preparing for study both free-living and parasitic protozoa.

2. PARASITOLOGY. Dr. Hegner and associates in hel-

minthology and medical entomology. Three days per week during one trimester.

This course is designed especially for those who wish to gain a knowledge of the animal parasites of man in a short time. The more technical phases of the subject of protozoölogy, helminthology and medical entomology are emphasized. The student is taught to recognize the species of parasites pathogenic to man and the diseases caused by them; how to collect, prepare for study, examine, and cultivate the more important species; and the practical methods of prevention and control.

The lectures are supplemented by the required reading of scientific articles in periodicals and reference books.

The laboratory work includes the study of stages of the life histories of the parasites; methods of preparing material for study; methods of laboratory diagnosis; the cultivation of parasites in lower animals and in artificial media; and excursions to incoming ships, to hospitals, and to suitable areas near Baltimore for the purpose of learning how to recognize the diseases caused by parasites, how to collect material, and how to control carriers.

3. Helminthology. Dr. Cort. Three days per week during one trimester. This course aims (1) to give a general knowledge of the biology of the flatworms (Platyhelminthes), round worms (Nemathelminthes), and certain other worms; (2) to acquaint the student with pathogenic species and the diseases caused by them; (3) to supply practice in methods of diagnosis; (4) to present methods of preventing the spread of pathogenic species by the control of the agents of transmission; (5) to furnish a knowledge of the problems presented by pathogenic species that will enable the student to carry on original investigations or take charge of public health work in helminthology.

4. Medical Entomology. Dr. Root. Three days per week during one trimester. This course is devoted chiefly to a study of the insects that transmit the bacteria, protozoa,

and worms that cause disease in man. Sufficient training in general entomology is included to furnish a foundation upon which to build a knowledge of the more important pathogenic species. Emphasis is placed on those phases of the subject relating to prevention and control.

5. Special Courses and Investigations in Protozoölogy, Helminthology and Medical Entomology. Students who may be able to attend the School for only part of the year and at a time when the regular courses desired are not given may elect special courses after consultation with the head of the department. Several hours each week will be spent with the instructor in charge, during which the student will be furnished with an outline of the work to be done and laboratory material. The subject matter considered and the credit given are the same as in the regular courses, but students who elect special courses must necessarily depend more upon their own resources and will receive less assistance from the instructors than members of the regular class.

Students who have had sufficient training may undertake original investigations in any of the above subjects. Small problems may be completed by properly qualified students in one trimester, but usually a year or more is required. Those who wish to elect any of these subjects as majors towards the degree of Doctor of Science in Hygiene must plan their course so that a large part of their time may be devoted to research.

PHYSIOLOGICAL HYGIENE

William H. Howell, Ph. D., M. D., Professor.
Reynold A. Spaeth, Ph. D., Associate.
Arthur L. Meyer, M. D., Associate.
Janet H. Clark, Ph. D., Associate.
Madge T. Macklin, M. D., Assistant.
Homer W. Smith, A. B., Fellow.

By physiological hygiene is understood the application of the facts and principles of animal physiology to problems of personal and public hygiene. The important subjects of diet

and nutrition are considered in the department of chemical hygiene. In the department of physiological hygiene the subjects taken up, in addition to a general course in animal physiology, are personal hygiene, the physiological effects of exercise and fatigue, of variations in the composition and physical properties of the atmosphere, and of radiant energy of various kinds. The main purpose held in view is to furnish a scientific preparation for work in the fields of industrial and school hygiene. The courses given are described in detail below. They consist of conferences or lectures and laboratory exercises. The conferences discuss the topics selected from both the practical and the theoretical side, but the laboratory work is limited as far as possible to practical methods and to visits of inspection. Course V, or an equivalent, is required as a preliminary to courses I, II, III and IV.

I. The Physiology of Work and Fatigue in Industry. Dr. Spaeth. The lectures during the first month of this course will be devoted to a consideration of the theoretical and experimental aspects of muscular and mental work and fatigue. The remainder of the course will deal with practical problems such as the limitation of scientific management; the length of the industrial work day; night work vs. day work; industrial accidents and fatigue; monotony and incentives; the emotionally unstable; civilian shell-shock analogues; the standardization of industrial working conditions; physical examination of workers, and the physical, physiological and psychological standardization of industrial workers by trades and processes.

Approximately six weeks will be taken up with laboratory training in physical, physiological and psychological standardization tests for industrial workers. This work will be followed by class visits and surveys of local industries, with reports and seminar discussion. Three days weekly during the first trimester, 9 a. m. to 4 p. m.

II. The Physiological Action of Light, X-Rays, and other Radiations. Dr. Clark. The lectures in this course

will deal with the effects produced in the living cell by the action of heat, visible and ultraviolet light, x-rays and radium. In connection with the pathological effects of radiant energy on the eye, the subject of illumination will be considered, particularly in its relation to hygienic conditions of lighting in schools and factories.

The laboratory work accompanying the lectures will include photometric measurements of the illumination in rooms and the candle power of different light sources; visual acuity determinations under different conditions of illumination, and measurements of errors of vision. There will, in addition, be visits of inspection to local schools and factories for the investigation of lighting conditions. Three days weekly, 9 a. m. to 4 p. m. during the first half of the third trimester.

III. Respiration, Ventilation and Climatology. Dr. Meyer. The lectures will consider the following topics: the composition of the atmosphere and the effect upon the body of the gases found in the atmosphere when present in abnormal concentrations, together with the effects of the various meteorologic elements, such as temperature, pressure and humidity; heat regulation and heat production in the body and the effects of high temperatures and humidity upon the body under artificial and natural (tropical) conditions, as also the influence of various climatic conditions on the metabolism; ventilation in its physiological relations, including a study of the effects of bad air, the laws of air currents, and the various types of ventilation employed in schools, factories, street cars, subways, etc.

The laboratory course is intended to familiarize the student with the methods of air analysis, including the quantitative determination of the presence of impurities, such as carbon monoxid, sulphur dioxid, and dust. Exercises are given also in the use of various instruments applicable to the study of air conditions, such as the hygrometer, the kata-thermometer, the anemometer, etc. Three days weekly, 9 a. m. to 4 p. m., during the second half of the third trimester.

IV. Personal Hygiene. Dr. Howell. Lectures upon the hygiene of the individual. The different organs of the body are considered in detail with reference to the conditions that influence their functional activity favorably or unfavorably. Once weekly during the third trimester.

V. Animal Physiology. Dr. Macklin. This course is intended primarily for candidates for the degree of Bachelor of Science in Hygiene. It comprises conferences and recitations covering the subject of animal or human physiology as usually given to medical students, and laboratory exercises. Three days weekly during the second trimester, 9 a. m. to 4 p. m.

VI. Journal Club. Dr. Howell. A journal club consisting of the instructors and advanced students in the departments of physiological hygiene and in the department of physiology in the Medical School, meets once weekly throughout the year. The object of these meetings is to present and discuss recent experimental work in physiology.

VII. Research. Special or advanced students will be assigned problems for investigation under the supervision of members of the staff.

BIOMETRY AND VITAL STATISTICS

Raymond Pearl, Ph. D., Professor.
Lowell J. Reed, Ph. D., Associate Professor.
William T. Howard, M. D., Lecturer.
John R. Miner, A. B., Associate.
Sylvia M. Parker, A. B., Instructor.
Chester E. Rutherford, Assistant.
Amy G. Phillips, Assistant.
Charmian Howell, S. B., Assistant.
Agnes L. Bacon, A. B., Volunteer Assistant.

The work of this department is intended to meet the needs of two classes of students: (a) Those training for work in public health; (b) those intending to specialize in statistical work either as teachers, investigators, or administrators.

I. Introduction to Vital Statistics. Dr. Pearl, Dr. Reed, Mr. Miner, Miss Parker, and Mr. Rutherford. Three days per week during one trimester. The course will be designed to acquaint the student, on the one hand, with modern methods of collecting, tabulating, adjusting, and drawing sound conclusions from statistical data regarding human life, and, on the other hand, with the chief results which have accrued from the study of vital statistics in the past. The course will involve a considerable amount of laboratory work, in which the student will gain first-hand familiarity with statistical data and methods in the fields of hygiene and public health. Special emphasis will be placed upon modern biometric and graphic methods.

II. Mortality Tables. Dr. Reed, Mrs. Howell. This course deals, in lectures and laboratory work, with the theory and practice of life table construction. The student will be familiarized with the standard methods of computing such tables, and of graduating such data, and also with certain novel methods devised in this department. The course is especially designed for (a) those intending to undertake public health work as a career; and (b) those planning to go into actuarial work.

III. The Statistical Measurement of the Effectiveness of Public Health Activities. Dr. Howard. This course, open only to those who have had course I in vital statistics, aims to give, by means of lectures and conferences, a historical and critical examination of the actual results of various public health activities. The most suitable statistical methods for the critical measurement of the effectiveness of such activities will be developed.

IV. Advanced Statistical Theory. Dr. Pearl, Dr. Reed, and Mr. Miner. This course is designed for those expecting to specialize in some phase of statistical work, and will be opened only to a limited number of properly qualified students. A prerequisite is course I in vital statistics. It will vary in content in different years, involving, at different

times, the discussion of such subjects as the theory of probability, curve fitting, the higher theory of correlation, actuarial mathematics, possible new applications of statistical methods in the fields of medicine and hygiene, etc.

V. Investigations in Biometry and Vital Statistics. Dr. Pearl. In the work of the department special attention will be devoted to research. Properly qualified workers, who may be either candidates for the degree of Doctor of Science in Hygiene or special students, may be taken into the laboratory and either assigned problems in connection with the general co-ordinated plan of investigation being pursued in the department, or aided and directed in the development of their own problems. The general lines along which research may profitably be undertaken in the department are: higher statistical theory, analytical studies on human vital statistics, genetic and other biological factors influencing the duration of life, the study by modern statistical methods of epidemiological problems.

Additional Opportunities. There are certain opportunities for advanced students, resulting from outside connections of the department, apart from the courses offered which require special mention.

I. Investigations on Tuberculosis. By means of funds furnished by the National Tuberculosis Association there is in progress in the department an intensive investigation of the genetic and environmental factors concerned in the etiology and epidemiology of tuberculosis. The investigation is being prosecuted by the method of intensive field study and pedigree analysis, along the lines which have been so fruitful in the general field of eugenics. The staff engaged in this work is as follows:

Blanche F. Pooler, Supervisor of Field Workers.
Alice F. Raymond, B. S., field worker.
Rebekah Sugar, field worker.
Margaret Riley, field worker.
Marian K. Gibson, A. B., field worker.

This investigation affords to properly qualified students an opportunity for practical experience and training in eugenic field work, and the analysis of the data from such work.

II. Central Statistical Bureau of the Baltimore Alliance. At the beginning of the present year the Baltimore Alliance, a federation of fourteen social or charitable agencies in the City of Baltimore, organized a new department of potentially far-reaching importance. It will be known as the Central Statistical Bureau, and will form an integral part of the Alliance. The functions of this Bureau are (1) to supervise, standardize, and control the permanent statistical records collected by each of the allied agencies; (2) to serve as the final repository of all case and statistical records; (3) on the basis of the critically controlled basic statistical records to carry on scientific investigations of those broad social problems toward the ultimate permanent solution of which the activities of the Alliance are directed.

Dr. Pearl has been appointed Director of the Central Statistical Bureau, and Miss Magdalen H. Burger, Chief Statistician. Funds have been provided for the necessary clerical staff. The Bureau will be housed with the department of biometry and vital statistics of the School of Hygiene and Public Health at 625 St. Paul Street, Baltimore.

It is to be expected that with the passage of time there will accumulate in this Bureau a set of records which will offer unique opportunities to graduate students and others wishing to undertake fundamental investigations into the causes of poverty, disease, and other social problems now retarding community health and happiness.

III. Hospital Statistics. Students interested in the statistical aspects of the problems of clinical medicine, surgery, and pathology will be afforded an opportunity of undertaking research upon these problems under the direction of Dr. Pearl. All of the extensive collection of case histories in the archives of the Hospital is available for such investigations.

PUBLIC HEALTH ADMINISTRATION

Sir Arthur Newsholme, M. D., Resident Lecturer.

The work of the department comprises: 1. Lectures. 2. Conferences. 3. Demonstrations.

In the lectures are included:

A sketch of the history of public health administration and of its inter-relation with other branches of administration, and with the medical and nursing professions.

Method of registration of births, sickness and death.

Methods of procedure in remedying sanitary or housing defects.

Administrative aspect of public health laboratory work.

The prevention of the chief epidemic diseases.

Hospital administration.

The prevention and control of tuberculosis and of venereal diseases.

Food sanitation.

Maternity and child welfare work.

School hygiene.

Industrial hygiene.

Public health nursing.

Methods of preparing budgets.

Conferences are held weekly, at which the subjects included in the lecture course are discussed and illustrated by diagrams, models, etc.

Demonstrations are given of practical work in general public health office administration and in methods of official action in regard to the control of infectious diseases, to food and milk, housing, nuisances, slaughter-houses, etc.: in the collection and use of vital statistics and use of the International Classification of causes of death.

Visits are made to public health laboratories, to infectious diseases hospitals, to tuberculosis hospitals, sanatoria, and

clinics, to venereal clinics, to schools, centres for maternity and child welfare work, and to places illustrating details in rural and urban sanitation, and in industrial hygiene.

EPIDEMIOLOGY

W. H. Frost, M. D., Surgeon, U. S. Public Health Service, Resident Lecturer.
F. M. Meader, M. D., Associate.
————————, Instructor.

The course is given in the third trimester, occupying eighteen hours a week

It is designed to give students a view of the importance and possibilities of epidemiological study in extending the knowledge of infectious diseases, and to afford them training in methods, especially as applicable to such studies as may ordinarily be made in connection with administrative measures for the control of infectious diseases, utilizing the data ordinarily available to public health organizations.

The minimum requirements for admission to the course are a knowledge of the basic facts and principles of bacteriology, equivalent at least to what is given in the course in elementary bacteriology, together with sufficient knowledge of elementary statistical method. Subject to certain exceptions, students will be admitted to this course only after completing the required course in vital statistics.

The work consists of:

1. A course of lectures presenting the principles and methods of epidemiological investigation and illustrating their application in special research and in such current study of infectious diseases as is a necessary part of the work of administrative health organization.

2. A course of selected collateral reading.

3. Class work, occupying approximately ten hours a week, in the analysis of crude epidemiological data, the presentation of conclusions and the planning of investigations.

4. Weekly conferences for the discussion of selected topics in connection with lectures, class work and collateral reading.

5. Demonstrations, arranged through the courtesy of the Baltimore City and Maryland State Departments of Health, of the work done by these organizations and associated agencies in the study and control of infectious diseases. These demonstrations are supplemented by individual field work on the part of students in the collection of epidemiological data from original sources; but this work is necessarily conditional upon the opportunities for field work which may be presented at the time.

6. The preparation, by each student, of a brief thesis on an assigned subject in epidemiology.

SCHEDULES OF COURSES FOR THE SESSION OF 1920-1921

SCHEDULES OF COURSES

SCHEDULE FOR THE COURSE LEADING TO THE DEGREE OF DOCTOR OF PUBLIC HEALTH

The schedule arranged for candidates for the degree of Doctor of Public Health will consist of a series of trimestral laboratory courses together with certain general and special lecture courses. The laboratory courses will extend in most cases from 9 a. m. to 4 p. m. (Saturday, 9 a. m. to 12 m.), and will include appropriate lectures or conferences. Each student will be expected to complete satisfactorily twelve trimestral laboratory courses, taking two such courses in each trimester, so that under ordinary conditions two years will be required to complete the work for the degree. It is understood that candidates for the degree may enter upon their work at the beginning of any trimester. In making up his twelve required laboratory courses each student will be given an opportunity to elect two or three of these courses in one department. The additional elected courses will be of a special or advanced character. In addition each student will be expected to attend the afternoon lectures during one year, and will be requested to show evidence of satisfactory field or laboratory work during one summer in some approved public health service.

Students taking the combined course in medicine and public health will be required to absolve only nine of the trimestral laboratory courses. The following provisional announcement is made of the arrangement of courses for the session of 1920-1921:

First or Fourth Trimester (September 28 to December 23)

Hours: 9 to 4; Saturdays, 9 to 12.

Laboratory Courses:

Bacteriology I.....Monday, Wednesday, Friday.
Protozoölogy .....Tuesday, Thursday, Saturday.
Sanitary Engineering.....Monday, 11.30 to 4. Wednesday, 8.30 to 11.30. Friday, 11.30 to 12.30.
Physiological Hygiene I.....Tuesday, Thursday, Saturday.
Chemistry .....Monday, Wednesday, Friday.
Statistics II.....Tuesday, Thursday, Saturday.

Afternoon Lectures:

Public Lectures.....Monday, 5 p. m. According to special announcement.
Public Health Administration.....Tuesday, 4, Sir Arthur Newsholme
Selected Topics in Hygiene.....Wednesday, 4, Dr. Welch.
Public Health Administration (Conference) .....Friday, 4, Sir Arthur Newsholme.

Second or Fifth Trimester (January 3 to March 19)

Hours: 9 to 4; Saturdays, 9 to 12.

Laboratory Courses:

Bacteriology II.....Monday, Wednesday, Friday.
Immunology I.....Tuesday, Thursday, Saturday.
Statistics I.....Monday, Wednesday, Friday.
Helminthology .....Tuesday, Thursday, Saturday.

Afternoon Lectures:

Public Lectures.....Monday, 5 p. m. According to special announcement.
Public Health Administration.....Tuesday, 4, Sir Arthur Newsholme.
Selected Topics in Hygiene.....Wednesday, 4, Dr. Welch.
Public Health Administration (Conference) .....Friday, 4, Sir Arthur Newsholme.

THIRD OR SIXTH TRIMESTER (MARCH 21 TO JUNE 11)

Hours: 9 to 4; Saturdays, 9 to 12.

Laboratory Courses:

Epidemiology	Monday, Wednesday, Friday.
Immunology II	Tuesday, Thursday, Saturday.
Physiological Hygiene II	Monday, Wednesday, Friday.
Medical Entomology	Tuesday, Thursday, Saturday.
Parasitology	Monday, Wednesday, Friday.
Chemistry	Tuesday, Thursday, Saturday.
Statistics III	Monday, Wednesday, Friday.

Afternoon Lectures:

Public Lectures	Monday, 5 p. m. According to special announcement.
Metabolism and Diet	Monday, 4 p. m., Dr. McCollum.
Metabolism and Diet	Tuesday, 4 p. m., Dr. McCollum.
Administrative Law	Wednesday, 4 p. m., Dr. Willoughby.
Mental Hygiene (Demonstration)	Thursday, 4.30 p. m., Dr. Campbell.
Metabolism and Diet	Friday, 4 p. m., Dr. McCollum.
Mental Hygiene (conference)	Saturday, 2.30 p. m., Dr. Campbell.

SCHEDULE FOR THE COURSE LEADING TO THE DEGREE OF BACHELOR OF SCIENCE

First Trimester (September 28 to December 23, 1920-1921)

Hours: 9 to 4; Saturdays, 9 to 12.

Laboratory Courses:

Bacteriology I.....Monday, Wednesday, Friday.
Anatomy .....Tuesday, Thursday.

Afternoon Lectures:

Public Lectures.....Monday, 5 p. m. According to special announcement.

Second Trimester (January 3 to March 19, 1920-1921)

Hours: 9 to 4; Saturdays, 9 to 12.

Laboratory Courses:

Physiology .....Monday, Wednesday, Friday.
Histology .....Tuesday, Thursday.

Afternoon Lectures:

Public Lectures.....Monday, 5 p. m. According to special announcement.

Third Trimester (March 21 to June 11, 1920-1921)

Hours: 9 to 4; Saturdays, 9 to 12.

Laboratory Courses:

Physiological Hygiene II.....Monday, Wednesday, Friday.
Chemistry .....Tuesday, Thursday, Saturday.

Afternoon Lectures:

Public Lectures.....Monday, 5 p. m. According to special announcement.
Personal Hygiene.....Thursday, 4 p. m. Dr. Howell.

(Fourth Trimester (1921-1922)

Hours: 9 to 4; Saturdays, 9 to 12.

Laboratory Courses:

Sanitary Engineering..... Monday, 11.30 to 4. Wednesday, 8.30 to 11.30. Friday, 11.30 to 12.30.

Physiological Hygiene I or Statistics II..... Tuesday, Thursday, Saturday.

Afternoon Lectures:

Public Lectures..... Monday, 5 p. m. According to special announcement.

Public Health Administration..... Tuesday, 4, Sir Arthur Newsholme.

Selected Topics in Hygiene..... Wednesday, 4, Dr. Welch.

Fifth Trimester (1921-1922)

Hours: 9 to 4; Saturdays, 9 to 12.

Laboratory Courses:

Bacteriology II or Statistics I..... Monday, Wednesday, Friday.

Immunology I..... Tuesday, Thursday, Saturday.

Afternoon Lectures:

Public Lectures..... Monday, 5 p. m. According to special announcement.

Public Health Administration..... Tuesday, 4, Sir Arthur Newsholme.

Selected Topics in Hygiene..... Wednesday, 4, Dr. Welch.

Sixth Trimester (1921-1922)

Hours: 9 to 4; Saturdays, 9 to 12.

Laboratory Courses:

Parasitology or Epidemiology..... Monday, Wednesday, Friday.

Elementary Pathology..... Tuesday, Thursday.

Afternoon Lectures:

Public Lectures..... Monday, 5 p. m. According to special announcement.

Metabolism and Diet..... Monday, 4 p. m., Dr. McCollum.

Metabolism and Diet..... Tuesday, 4 p. m., Dr. McCollum.

Administrative Law..... Wednesday, 4 p. m., Dr. Willoughby.

Metabolism and Diet..... Friday, 4 p. m., Dr. McCollum.

INTENSIVE COURSE OF INSTRUCTION FOR PUBLIC HEALTH OFFICERS

This course begins on Monday, November 8, and extends to Saturday, December 18. It is intended to meet the needs of public health officers wishing to increase their knowledge of hygiene and public health; and of physicians proposing to enter into public health work who find it impracticable to devote a year or two years to a full course of instruction.

The course of instruction will consist chiefly of conferences and demonstrations, supplemented by visits of inspection to important sanitary and industrial works, to schools, to centers of sanitary administration and to specialized clinics and welfare centers.

On each week day demonstrations or practical exercises will occupy the hours from 9 to 4, followed by a lecture on five days a week from 4 to 5 p. m. On two evenings a week conferences on important phases of public health will be held.

The fee for the courses will be $50.00, payable on registration. This fee will be remitted for those actually engaged in full-time health work who are suitably recommended.

INDEX

INDEX OF NAMES

	PAGE
Abercrombie, A. D. S.	17
Anderson, C. M.	15
Atwater, R. M.	14, 15
Bacon, A. L.	13, 17, 50
Bailey, C. E.	16
Bailey, G. H.	15
Baker, N. D.	6
Barrett, E. M. J.	16
Bartual-Vicens, L.	13, 19, 42
Beard, L. C.	20
Bernard, Z.	17
Boeck, W. C.	14
Boyce, W. G.	6
Brown, O. G.	15
Bull, C. G.	8, 21, 42, 43
Burger, M.	17, 53
Burroughs, L. C.	17
Caldwell, F. C.	17
Campbell, C. M.	61
Cheer, S.	20
Clark, J. H.	11, 47, 48
Collinson, J.	15
Cornelius, J. T.	15
Cort, W. W.	10, 45, 46
Cox, C. R.	16
Cromwell, H.	16
Dean, A. S.	20
DeLamar, J. R.	32
Dorsey, A. H. E.	17
Dreyer, G.	33
Driml, K.	17
Durham, M. L.	21
Eaton, P.	11, 41
Ellicott, V. LeM.	15
Ellinger, T. U. H.	17
Emerson, C. P.	35
Finley, E. B.	17
Ford, W. W.	8, 21, 41, 42
Freeman, A. W.	35
Frost, W. H.	8, 21, 55
Fulton, J. S.	9
Gaerlan, R. Padua	15
Gibson, M.	17, 52
Glenn, J., Jr.	6
Goodnow, F. J.	7, 21
Goodwin, W. A.	17
Gorgas, W. C.	34
Gover, M.	16
Gregory, J. H.	9, 21, 43
Griswold, B. H., Jr.	6
Hamilton, J. H.	18
Harlan, H. D.	6
Hausheer, W. C.	18
Hegner, R. W.	9, 21, 45
Hogue, M. J.	13, 45
Howard, W. T.	9, 50, 51
Howell, C.	13, 18, 50, 51
Howell, W. H.	7, 21, 25, 47, 50, 62
Hulka, J.	18
Hulse, F. E.	18
Hyde, R. R.	10, 42, 43
Jones, C. H.	10
Jones, E. A.	18
Kelly, H. A.	33
Keyser, R. B.	6
Klein, D.	9, 44
Koch, M.	11, 44
Koch, M. L.	17
Koehne, M.	12, 44
Lange, L. B.	12, 41
Leach, C. N.	14
Lee, F. S.	34
Legge, T. M.	33
Leigh, A. J.	16
Levering, E.	6
Levine, V. E.	18
Lichtenstein, H.	18
Lim, C. E.	15
Linthicum, E. S.	18
Lopez-Rizal, L.	19
McCollum, E. V.	7, 21, 36, 44, 61
McKinney, E. M.	18
MacDonald, M. B.	18
Macklin, M. T.	13, 47, 50
Magee, C. L.	18
Marburg, T.	6
Maxcy, K. F.	14, 15
Meader, F. M.	11, 55
Meader, P. D.	12, 41
Meyer, A. L.	11, 47, 49
Miner, J. R.	10, 16, 50, 51
Molloy, D. M.	15
Moore, W. C.	10, 42, 43
Nauss, R. E.	15

PAGE

Neuhausen, B. S..... 20
Newsholme, A...8, 21, 33, 34, 54, 60, 63
Nicholls, E. E..... 17
Norris, E..... 21
Oldt, F..... 15
Oppenheimer, E. H..... 17
Osborn, I. S..... 34
Padua-Gaerlan, R..... 15
Parker, S. L.....11, 50, 51
Parsons, H. T.....11, 44
Payne, F. K..... 18
Payne, G. C..... 15
Pearl, R.....8, 21, 50, 51, 52, 53
Petritz, L. J..... 18
Pfeiffer, J. A. F..... 16
Phillips, A. G.....12, 18, 50
Pitlik, S..... 16
Pooler, B.....18, 52
Powdermaker, F.....13, 18, 44
Powell, H. M..... 19
Pritchett, I. W.....13, 16, 42
Randall, B..... 6
Raymond, A.....19, 52
Reed, L. J.....9, 21, 50, 51
Riley, M. I.....19, 52
Riley, R. H..... 19
Rivas-Vides, R..... 19
Rizal, L. Lopez..... 19
Robinson, G. H.....10, 21, 41
Root, F. M.....12, 45, 46
Rose, W..... 25
Rutherford, C. E.....12, 50, 51
Salmon, T. W..... 35
Salter, R. C.....13, 16, 41

PAGE

Schultze, E. W..... 19
Shelling, D. H..... 17
Simmonds, N.....12, 44
Simon, C. E..... 13
Slemons, J. M..... 35
Smith, H. W.....13, 16, 47
Smith, O. C..... 19
Snow, W. F..... 34
Snyder, J. C..... 17
Soper, F. L..... 19
Souza, G. H. deP..... 16
Spaeth, R. A.....10, 21, 47, 48
Starkey, T. A..... 35
Sugar, R.....19, 52
Sutton, F. D..... 20
Taliaferro, W. H.....12, 45
Thies, E. S..... 19
Tumbleson, C. C..... 19
Van Winkle, C. C..... 20
Vaughan, V. C..... 34
Veiller, L..... 33
Vicens, L. Bartual.....13, 19, 42
Vides, R. Rivas..... 19
Vieira, F. B..... 16
Visher, J. W..... 19
Visscher, J. P..... 20
Wassell, C. McA..... 19
Welch, W. H.....7, 21, 25, 60, 63
White, M. Jr..... 6
Willard, D..... 6
Williams, J. W..... 35
Willoughby, W. W.....61, 63
Wood, F. W..... 6
Yeager, C. H..... 19
Yokogawa, S..... 13

INDEX

PAGE

Admission, Requirements for..... 27, 29, 30, 31
Advisory Board of the Faculty.... 21
Applications, Committee on..... 21
Artist 21
Assistant Director.....7, 21, 26
Assistants 12
Associates 10
Associate Professors..... 8
Announcement of Courses, Departments of Instruction and,
Bacteriology 41
Biometry and Vital Statistics, 50
Chemical Hygiene..... 44
Epidemiology 55
Immunology, ... 42
Medical Zoölogy..... 45
Physiological Hygiene..... 47
Public Health Administration, 54
Sanitary Engineering..... 43
Special Students..... 32
Intensive 64
Bachelor of Science in Hygiene, Candidates for degree of.... 16
Course leading to degree of.. 30
Schedule for course..... 62
Bacteriology, Course in..... 41
Biometry and Vital Statistics, Course in..... 50
Board of Trustees..... 6
Advisory, of the Faculty..... 21
Calendar 5
Registration and..... 37
Candidates for degree of Doctor of Public Health..... 15
Doctor of Science in Hygiene, 16
Bachelor of Science in Hygiene 16
Certificate in Public Health, Course leading to..... 31
Chemical Hygiene, Course in..... 44
Committee, Executive..... 21
Library 21
On Applications..... 21
On Publications..... 21
Contents 3

PAGE

Courses,
Doctor of Public Health..... 27
Doctor of Science in Hygiene, 29
Bachelor of Science in Hygiene 30
Certificate in Public Health.. 31
Special Students..... 32
Intensive, Schedules of.....59, 64
Degrees, Candidates for
Doctor of Public Health..... 15
Doctor of Science in Hygiene, 16
Bachelor of Science in Hygiene 16
De Lamar Lectures in Hygiene.... 32
Departments of Instruction and Announcement of Courses,
Bacteriology 41
Biometry and Vital Statistics, 50
Chemical Hygiene..... 44
Epidemiology 55
Immunology 42
Medical Zoölogy..... 45
Physiological Hygiene..... 47
Public Health Administration, 54
Sanitary Engineering..... 43
Special Students..... 32
Intensive 64
Director 7, 21, 26
Assistant 7, 21, 26
Doctor of Public Health,
Candidates for degree of..... 15
Course leading to degree of... 27
Schedule for course..... 60
Doctor of Science in Hygiene, Candidates for degree of..... 16
Course leading to degree of.. 29
Epidemiology, Course in..... 55
Executive Committee..... 21
Faculty 7
Advisory Board of the..... 21
Fellows 13
By Courtesy..... 13
Fellowships 36
General Statement..... 25
Health Officers, Intensive Course for 64

	PAGE
Immunology, Course in	42
Instruction and Announcement of Courses, Departments of,	
Bacteriology	41
Biometry and Vital Statistics,	50
Chemical Hygiene	44
Epidemiology	55
Immunology	42
Medical Zoölogy	45
Physiological Hygiene	47
Public Health Administration,	54
Sanitary Engineering	43
Special Students	32
Intensive	64
Instructors	11
Intensive Course of Instruction for Public Health Officers	64
Lecturers	9
Lectures, De Lamar	32
School Hygiene	36
Library Committee	21
Librarian	21
Medical Zoölogy, Course in	45
Officers	21
Physiological Hygiene, Course in	47
President of the University	6, 7, 21
Professors	7
Associate	8
Public Health, Course leading to Certificate in	31
Public Health Administration, Course in	54
Public Health Officers, Intensive Course for	64
Public Lectures	32
Publications, Committee on	21
Requirements for Admission	27, 29, 30, 31
Registration and Calendar	37
Rockefeller Foundation Scholars	14
Sanitary Engineering, Course in	43
Schedules of Courses,	
Doctor of Public Health	59
Bachelor of Science in Hygiene	62
Scholars, Rockefeller Foundation	14
Scholarships	36
School Hygiene, Course in	36
Secretary	21
Special Students, Courses for	32
List of	17
Statement, General	25
Statistics, Course in Biometry and Vital	50
Students, 1919-1920	15
Special	17
Summary of Students	20
Treasurer of the University	6
Trustees, Board of	6
Tuition	37
University, President of	6
Treasurer of	6
Trustees of	6
Zoölogy, Course in Medical	45

uZhy
22

New Series, 1921
No. 2

Whole Number 330

THE

JOHNS HOPKINS

UNIVERSITY CIRCULAR

SCHOOL OF HYGIENE AND PUBLIC HEALTH

CATALOGUE AND ANNOUNCEMENT FOR 1921-1922

BALTIMORE, MARYLAND
PUBLISHED BY THE UNIVERSITY
ISSUED MARCH, APRIL, JUNE, JULY, OCTOBER, NOVEMBER

APRIL, 1921

Entered, October 21, 1903, at Baltimore, Md., as second class matter, under Act of Congress of July 16, 1894

Acceptance for mailing at special rate of postage provided for in Section 1103 Act of October 3, 1917. Authorized on July 3, 1918

HENRY B. WARD,
STATE UNIVERSITY

THE

JOHNS HOPKINS UNIVERSITY

SCHOOL OF HYGIENE AND PUBLIC HEALTH

CATALOGUE AND ANNOUNCEMENT
FOR 1921-1922

BALTIMORE
THE JOHNS HOPKINS PRESS
1921

CONTENTS

PAGE

Calendar 5
Trustees of the Johns Hopkins University 6
Treasurer of the University 6
Faculty 7
Fellows 14
Rockefeller Foundation Scholars 14
Students 15
Summary 23
Advisory Board of the Faculty 24
Executive Committee 24
Committee on Applications 24
Committee on Publications 24
Library Committee 24
Other Officers 24
General Statement and Requirements for Admission:
General Statement 27
Courses and Degrees:
Doctor of Public Health 29
Doctor of Science in Hygiene 30
Bachelor of Science in Hygiene 31
Certificate in Public Health 32
Intensive Course for Public Health Officers 33
Special Students 33
The De Lamar Lectures in Hygiene 34
Public Lectures 34
Course in School Hygiene 37
Scholarships 37
Fellowships 37
Publications 38
Registration and Calendar 38
Tuition 39
Departments of Instruction and Announcements of Courses:
Bacteriology 43
Immunology 44
Sanitary Engineering 46
Chemical Hygiene 46
Medical Zoology 48
Physiological Hygiene 51
Biometry and Vital Statistics 54
Public Health Administration 57
Epidemiology 58
Schedules of Courses for the Season of 1921-1922:
Doctor of Public Health 63
Bachelor of Science in Hygiene 66
Certificate in Public Health 68
Intensive Course for Public Health Officers 69
Alphabetical Index of Names 73
Index 76

1921

JANUARY

S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	..	..	..	..	..

FEBRUARY

S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	..	..	..	..	..

MARCH

S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	..	..

APRIL

S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30

MAY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	..	..	..	..

JUNE

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	..	..

JULY

S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	..	..	..	..	..	..

AUGUST

S	M	T	W	T	F	S
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	..	..	..

SEPTEMBER

S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	..
..	..	..	..	..	..	..

OCTOBER

S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	..	..	..	..	..

NOVEMBER

S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	..	..	..

DECEMBER

S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

1922

JANUARY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	..	..	..	..

FEBRUARY

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	..	..	..	..

MARCH

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	..

APRIL

S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	..	..	..	..	..	..

MAY

S	M	T	W	T	F	S
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	..	..	..

JUNE

S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	..

JULY

S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	..	..	..	..	..

AUGUST

S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	..	..

SEPTEMBER

S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
..	..	..	..	..	..	..

OCTOBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	..	..	..	..

NOVEMBER

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	..	..

DECEMBER

S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	..	..	..	..	..	..

CALENDAR, 1921-1922

1921

June 21, Tuesday—Conferring of degrees (4 p. m.).

October 4, Tuesday—Instruction begins. Fourth academic year.

November 24, Thursday—Thanksgiving Day (all classes suspended).

December 23, Friday—Christmas recess begins (no classes).

1922

January 3, Tuesday—Instruction resumed.

February 22, Wednesday—Commemoration Day. Public exercises at 11 a. m. (All classes suspended).

April 13, Thursday—Easter recess begins (no classes).

April 20, Thursday—Instruction resumed.

June 20, Tuesday—Conferring of degrees (4 p. m.).

October 3, Tuesday—Instruction begins. Fifth academic year.

BOARD OF TRUSTEES

R. Brent Keyser, *President*
Eugene Levering
Theodore Marburg.
Blanchard Randall
Henry D. Harlan, *Secretary*
Miles White, Jr.
B. Howell Griswold, Jr.
John Glenn, Jr.
Frederick W. Wood
Daniel Willard
Newton D. Baker
J. Hall Pleasants
The President of the University, *ex officio*

W. Graham Boyce, *Treasurer*

FACULTY

FRANK JOHNSON GOODNOW, LL. D.

President of the University

A. B., Amherst College, 1879, and A. M., 1887; LL. B., Columbia University, 1882; LL. D., Amherst College, 1897, Columbia University, 1904, Harvard University, 1909, Brown University, 1914, Princeton University, 1917; Professor of Administrative Law, Columbia University, 1887-1914.

6 W. Madison St.

WILLIAM HENRY WELCH, M. D., LL. D.

Director and Head of the Department of Bacteriology and Immunology

A. B., Yale University, 1870; M. D., Columbia University (College of Physicians and Surgeons, N. Y.), 1875; M. D. (Hon.), University of Pennsylvania, 1894; LL. D., Western Reserve University, 1894, Yale University, 1896, Harvard University, 1900, University of Toronto, 1903, Columbia University, 1904, Jefferson Medical College, 1907, Princeton University, 1910, Washington University, 1915, and University of Chicago, 1916; Professor of Pathological Anatomy and General Pathology in the Bellevue Hospital Medical College, N. Y., 1879-1884; Pathologist to the Johns Hopkins Hospital and Baxley Professor of Pathology, 1884-1917; Dean of the Medical Faculty, 1889-1898; President of the National Academy of Sciences, 1913-1917; President of the Board of Directors of the Rockefeller Institute for Medical Research; President of the American Association for the Advancement of Science, 1906; President of the American Medical Association, 1910-1911; Member of the American Philosophical Society.

807 St. Paul St.

WILLIAM HENRY HOWELL, PH. D., M. D., SC. D., LL. D.

Assistant Director and Professor of Physiology

A. B., Johns Hopkins University, 1881, Fellow, 1882-1884, and Ph. D., 1884; LL.D., Trinity College (Conn.), 1901; Sc. D., Yale University, 1911; M. D. (Hon.), University of Michigan, 1890, LL. D., 1912; LL. D., Washington University, 1915; Assistant, Associate and Associate Professor of Biology, Johns Hopkins University, 1884-1889; Lecturer and Professor of Physiology and Histology, University of Michigan, 1889-1892; Associate Professor of Physiology, Harvard University, 1892-1893; Member of the National Academy of Sciences and of the American Philosophical Society; Dean of the Medical Faculty, 1899-1911; Professor of Physiology, Medical School, 1893-1920.

232 W. Lanvale St.

ELMER VERNER McCOLLUM, PH. D., SC. D.

Professor of Bio-Chemistry

A. B., University of Kansas, 1903, and A. M., 1904; Loomis Fellow, Yale University, 1905-1906, and Ph. D., 1906; Sc. D., University of Cincinnati, 1920; Instructor, Assistant Professor, Associate Professor and Professor of Agricultural Chemistry, University of Wisconsin, 1907-1917; Cutter Lecturer on Hygiene and Preventive Medicine, Harvard University, 1917-1918; Member of the National Academy of Sciences; Associate Member Royal Academy of Medicine of Belgium; Associate Editor, *Journal of Biological Chemistry* and *Journal of Dental Research*.

Talbot Rd., Windsor Hills.

RAYMOND PEARL, PH. D., SC. D., LL. D.

Professor of Biometry and Vital Statistics

A. B., Dartmouth College, 1899; Ph. D., University of Michigan, 1902; Sc. D., Dartmouth College, 1919; LL. D., University of Maine, 1919; Instructor in Zoology, University of Michigan, 1902-1906; in the University of Pennsylvania, 1906-1907; Biologist of the Maine Agricultural Experiment Station, 1907-1917; Chief of the Statistical Division of the United States Food Administration, 1917-1919; Member of the National Academy of Sciences and of the American Philosophical Society; Fellow of the American Academy of Arts and Sciences; Knight of the Crown of Italy; Associate Editor of *Genetics* and of the *Journal of Experimental Zoology;* Chairman of the Editorial Board of the Proceedings of the National Academy of Sciences; Statistician of The Johns Hopkins Hospital.

401 Hawthorn Rd., Roland Park.

JOHN HERBERT GREGORY, S. B.

Professor of Civil and Sanitary Engineering

S. B., Massachusetts Institute of Technology, 1895, Hydraulic and Sanitary Engineer, 1895-1911, Consulting Sanitary Engineer, 1911—; Member American Society of Civil Engineers; Associate Professor of Civil Engineering, Johns Hopkins University, 1919-1920.

3925 Canterbury Rd., Guilford.

SIR ARTHUR NEWSHOLME, M. D.

Resident Lecturer in Charge of Public Health Administration

Knight Commander of the Bath (K. C. B.); M. D., University of London, 1881, and Certificate of Public Health, 1885; Medical Officer of Health, Clapham, 1885-1888; Medical Officer of Health, Brighton, 1889-1907; Milroy Lecturer, Royal College of Physicians, 1895; Fellow, Royal College of Physicians, 1898; Principal Medical Officer Local Government Board of England, 1908-1919; President, Society of Medical Officers of Health, 1900-1901; President, Epidemiological Society, 1907-1908; Member of Royal Commission on Venereal Diseases, of Army Sanitary Committee and of Interdepartmental Committees on Tuberculosis and on Dental Registration; Lieut. Col. R. A. M. C. (T); Member of Council of Imperial Cancer Fund; Crown Nominee General Medical Council, 1909-1919.

312 W. Monument St.

WADE HAMPTON FROST, M. D., SURGEON, U. S. P. H. S.*

Resident Lecturer in Charge of Epidemiology

A. B., University of Virginia, 1901, and M. D., 1903; Assistant Surgeon and Surgeon, United States Public Health Service, 1905-; Director, Bureau of Sanitary Service, American Red Cross, 1917.

3820 Roland Av.

ASSOCIATE PROFESSORS

WILLIAM WEBBER FORD, M. D., D. P. H.

Associate Professor of Bacteriology

A. B., Adelbert College, 1893; M. D., Johns Hopkins University, 1898, Instructor, Associate, and Associate Professor of Bacteriology, 1904-1910, Associate Professor of Bacteriology and Hygiene, 1910-1917; D. P. H., McGill University, 1900, and Fellow in Pathology, 1899-1901; Resident House Officer, Johns Hopkins Hospital, 1898-1899; Fellow, Rockefeller Institute for Medical Research, 1901-1902; Institute for Infectious Diseases, Berlin, 1901-1902, and Johns Hopkins University, 1902-1903; Hygienic Institute, University of Vienna, 1912-1913; Lecturer on Hygiene and Epidemiology, Johns Hopkins University, 1917—.

Charles St. Av., Woodbrook.

* Detailed to the School of Hygiene and Public Health by the Surgeon-General of the United States Public Health Service.

CARROLL GIDEON BULL, M. D.

Associate Professor of Immunology

S. B., Peabody College, 1907; M. D., University of Nashville, 1909; Pathologist to Lincoln Memorial Hospital, 1910-1912; Assistant, Nelson Morris Institute for Medical Research, 1912-1913; Assistant and Associate in Pathology and Bacteriology, The Rockefeller Institute for Medical Research, 1913-1917.

Montgomery Road, Windsor Hills

LOWELL JACOB REED, PH. D.

Associate Professor of Biometry and Vital Statistics

S. B. and S. M., University of Maine, 1907 and 1912, Ph. D., University of Pennsylvania, 1915; Assistant Professor of Mathematics, University of Maine, 1915-1917; Director of Bureau of Tabulation and Statistics, War Trade Board, Washington, 1917-1918; Associate in Biometry and Vital Statistics, Johns Hopkins University, 1918-1919.

3409 Duvall Av., Forest Park.

ROBERT WILLIAM HEGNER, PH. D.

Associate Professor of Protozoology

S. B. and S. M., University of Chicago, 1903 and 1904; Ph. D., University of Wisconsin, 1908; Instructor, University of Michigan, 1908-1910, and Assistant Professor, 1910-1917; Johnston Scholar, Johns Hopkins University, 1917-1918; Associate in Protozoology, 1918-1919.

218 Hawthorn Rd., Roland Park.

WILLIAM WALTER CORT, PH. D.

Associate Professor of Helminthology

A. B., Colorado College, 1909; A. M. and Ph. D., University of Illinois, 1911 and 1914; Professor of Biology, Macalester College, 1914-1916; Assistant Professor of Zoology, University of California, 1916-1919; Consulting Helminthologist, State Board of Health, California, 1918-1919; Associate in Helminthology, Johns Hopkins University, 1919-1920.

3608 Woodbine Av., West Forest Park.

LECTURERS

WILLIAM TRAVIS HOWARD, M. D.

Lecturer in Biometry and Vital Statistics

M. D., University of Maryland, 1889; Graduate Student, Johns Hopkins University, 1889-1894; University of Prague, 1895; University of Munich, 1906-1907 and 1911; Professor of Pathology, Western Reserve University; Pathologist to the Lakeside and City Hospitals, Cleveland, 1894-1914; Bacteriologist Cleveland Board of Health, 1902-1914; Assistant Commissioner of Health, Baltimore, 1915 1919.

835 University Parkway.

JOHN SAMUEL FULTON, M. D.

Lecturer in Public Health

A. B., St. Johns College, 1876; M. D., University of Maryland, 1881; Secretary State Board of Health, 1898-1907; and since 1912; Professor of State Medicine University of Maryland, 1900-1918; Secretary-General Fifth International Congress on Tuberculosis, 1908; Secretary-General Fifteenth International Congress on Hygiene and Demography, 1912; Fellow Royal Society of Physicians of Hungary; Lieut.-Col. M. R. C., U. S. Army, Retired.

2211 St. Paul St.

CHARLES HAMPSON JONES, M. D.

Lecturer in Public Health

M. B., C. M., University of Edinborough, 1883; M. D. (Hon.), College of Physicians and Surgeons, Baltimore, 1889; Commissioner of Health, Baltimore, 1898-1900; Assistant Commissioner, 1900-1915; Chief of Bureau of Communicable Diseases, State Department of Health, 1915; Commissioner of Health, Baltimore, 1919; Professor of Hygiene and Preventive Medicine, University of Maryland and College of Physicians and Surgeons.

2529 St. Paul St.

CHARLES EDMUND SIMON, M. D.

Lecturer in Medical Zoology

A. B., Johns Hopkins University, 1888; M. D., University of Maryland, 1890; Professor of Clinical Pathology, University of Maryland and College of Physicians and Surgeons, 1908-1920; Fellow by Courtesy, Johns Hopkins University, 1919-1920.

1734 Linden Ave.

WILLIAM FREEMAN SNOW, M. D.

Lecturer in Venereal Diseases

A. B., A. M., and M. D., Stanford University, 1896-1897 and 1900; Instructor in Biology and Physiological Optics, Cooper Medical College, 1898-1900; Assistant Professor and Associate Professor of Hygiene, Stanford University, 1902-1906; Professor of Hygiene and Public Health, 1909-1920; State Health Commissioner of California, 1909-1913; General Director, American Social Hygiene Association, 1914—.

370 Seventh Ave., New York.

ASSOCIATES

GEORGE HENRY ROBINSON, Ph. D.

Associate in Bacteriology

A. B., Bates College, 1911; A. M., Brown University, 1912, and Ph. D., 1914; Research Laboratory, H. K. Mulford Company, 1914-1918.

3818 Barrington Road.

REYNOLD ALBRECHT SPAETH, Ph. D.

Associate in Physiology

S. B., Haverford College, 1909; A. M., Harvard University, 1910, and Ph. D., 1913; Sheldon Fellow, Physiological Institute, Kiel, 1913-1914; Instructor in Biology, Clark College, 1914-1915, and Yale University, 1915-1918; Technical Assistant in Pharmacology, Hygienic Laboratory, U. S. Public Health Service, 1918.

212 Longwood Rd., Roland Park

JOHN RICE MINER, A. B.

Associate in Biometry and Vital Statistics

A. B., University of Michigan, 1913; Computer, Maine Agricultural Experiment Station, 1913-1917; Biometrician, Statistical Division, U. S. Food Administration, 1917-1918.

Towson, Md.

ROSCOE RAYMOND HYDE, Ph. D.

Associate in Immunology

A. B. and A. M., Indiana University, 1909; Ph. D., Columbia University, 1915; Assistant in Embryology, Indiana University, 1908-1909; Assistant Professor, Professor and Head of Department of Zoology and Physiology, Indiana State Normal School, 1909-1919; Lecturer in Genetics, Terre Haute Veterinary College, 1910-1918; Dyckman Fellow, Columbia University, 1912-1913; Fellow, Johns Hopkins University, 1918-1919.

4101 Penhurst Av.

ARTHUR LOUIS MEYER, M. D.

Associate in Physiology

A. B., Beloit College, 1905; M. D., University of Pennsylvania, 1909; Harvard Medical School, 1912-1913; Oxford University and Cambridge University, 1913; Assistant, Russell Sage Institute of Pathology, 1914-1915; Assistant and Associate, Rockefeller Institute for Medical Research, 1915-1919.

1109 St. Paul St.

MATHILDE KOCH, S. M.

Associate in Bio-Chemistry

S. B., University of Chicago, 1910, and S. M., 1912; Research Assistant in Bio-Chemistry, 1910-1914; Special Expert, Hygienic Laboratory, United States Public Health Service, 1914-1915; Assistant in Chemistry, Psychiatric Institute, New York State Hospital, 1915-1920, and Acting Assistant in Serology, 1918-1920.

2710 N. Charles St.

JANET HOWELL CLARK, Ph. D.

Associate in Physiology

A. B., Bryn Mawr College, 1910; A. M., Johns Hopkins University, 1912, and Ph. D., 1913; Huff Fellow, Bryn Mawr College, 1913-1914, and instructor in Physics, 1914-1915; Sarah Berliner Fellow, 1915-1916; Instructor, Smith College, 1916-1917; Assistant in Pathology, Johns Hopkins University, 1917-1918; Instructor in Physiology, 1918-1919.

232 W. Lanvale St.

WILLIAM HAY TALIAFERRO, Ph. D.

Associate in Protozoology

S. B., University of Virginia, 1915; Assistant in Biology, Johns Hopkins University, 1915-1917; Adam T. Bruce Fellow, 1917-1918; Ph. D., 1918; Johnston Scholar, 1919; Instructor in Protozoology, 1919-1920.

1824 Bolton St.

FRANCIS METCALF ROOT, Ph. D.

Associate in Medical Entomology

A. B., Oberlin College, 1911, A. M., 1912; Graduate Student, Johns Hopkins University, 1912-1914, University Fellow, 1914-1915; Adam T. Bruce Fellow, 1915-1917, Ph. D., 1917; Teaching Fellow in Medical Entomology, 1919-1920.

2320 Callow Av.

NINA SIMMONDS, S. B.

Associate in Bio-Chemistry

S. B., University of Wisconsin, 1915, Assistant in Agricultural Chemistry, 1915-1917; Assistant and Instructor in Bio-Chemistry, Johns Hopkins University, 1917-1920.

511 N. Wolfe St.

ALFRED THEODORE SHOHL, M. D.

Associate in Bio-Chemistry

A. B. and M. D., Harvard University, 1910 and 1914; Assistant in Urology, Johns Hopkins University, 1917-1920.

3909 Dalrymple Ave.

LEON CLIVE HAVENS, M. D.

Associate in Immunology

A. B. and A. M., Colorado College, 1913 and 1914; M. D., Harvard University, 1918.

4008 Edmondson Ave.

MILTON VICTOR VELDEE, M. D.

Associate in Epidemiology

Ph. C., S. B. and S. M., University of Washington, 1911, 1913 and 1914; M. D., Harvard University, 1919.

2710 N. Charles St.

INSTRUCTORS

SYLVIA LOUISE PARKER, A. B.

Instructor in Biometry and Vital Statistics

A. B., Mount Holyoke College, 1916, and Laboratory Assistant in Zoology, 1916-1917; Assistant Biologist, Maine Agricultural Experiment Station, 1917-1918.

3409 Duvall Ave., Forest Park

PERCY DAVOL MEADER, PH. D.

Instructor in Bacteriology

Ph. B., Sc. M. and Ph. D., Brown University, 1914, 1916 and 1918; Assistant Bacteriologist, Providence Health Department, 1916-1918; Assistant, Johns Hopkins University, 1918.

813 N. Howard St.

LINDA BARTELS LANGE, M. D.

Instructor in Bacteriology

A. B., Bryn Mawr College, 1903; M. D., Johns Hopkins University, 1911; Interne, New York Infirmary for Women and Children, 1911-1912; Fellow in Pathology and Bacteriology, Rockefeller Institute for Medical Research, 1912-1914; Pathologist, Howard A. Kelly Hospital, Inc., 1914-1915; Instructor in Pathology, University of Wisconsin, 1915-1916; Assistant and Instructor in Medicine, Johns Hopkins University, 1916-1918; Fellow in Bacteriology, 1918-1919.

804 N. Broadway

WILLIAM THURBER FALES, S. B., C. P. H.

Instructor in Epidemiology

S. B., Massachusetts Institute of Technology, 1917; C. P. H., School of Public Health of Harvard University and the Massachusetts Institute of Technology, 1920.

2938 Clifton Av.

ERNEST JOSEPH CAULFIELD, M. D.

Instructor in Physiology

S. B., Trinity College, 1916; M. D., Johns Hopkins University, 1920.

1220 N. Broadway

ASSISTANTS

AMY GEORGINA PHILLIPS

Assistant in Biometry and Vital Statistics

312 W. Monument St.

CHESTER EARL RUTHERFORD

Assistant in Biometry and Vital Statistics

1524 Ellamont St.

CHARMIAN HOWELL, S. B.

Assistant in Biometry and Vital Statistics

S. B., Oakcliffe College, 1903.

421 E. Biddle St.

AGNES LATIMER BACON, A. B.

Volunteer Assistant in Biometry and Vital Statistics

A. B., Wellesley College, 1897.

2316 N. Calvert St.

ETHEL MAY KINNEY, A. M.

Assistant in Bio-Chemistry

A. B. and A. M., University of Kansas, 1918 and 1920; Research Assistant, University of Wyoming, 1918-1919; Fellow, University of Kansas, 1919-1920.

101 Jackson Place

MADELINE SPENCER KING, A. B.

Assistant in Bio-Chemistry

A. B., Goucher College, 1920.

35 E. 25th St.

DONALD LESLIE AUGUSTINE, S. B.

Assistant in Medical Zoology

S. B., Macalester College, 1918, and Adjunct Professor of Biology, 1919-1920.

1720 Linden Ave.

ELERY RONALD BECKER, A. B.

Assistant in Medical Zoology

A. B., University of Colorado, 1920.

1720 Linden Ave.

RAYMOND CLEVELAND SALTER, Sc. D.

Assistant in Bacteriology

S. B., University of Wisconsin, 1915; S. M., Iowa State College, 1918; Fellow, Johns Hopkins University, 1919-1920, and Sc. D. in Hygiene, 1920; Chief, Bureau of Bacteriology, Maryland State Department of Health, 1920—.

2319 Callow Ave.

FELLOWS BY COURTESY

JAMES EDWARD ACKERT, PH. D.

A. B., A. M. and Ph. D., University of Illinois, 1909, 1911 and 1913; Professor of Zoology, Kansas State Agricultural College, 1918—.

9 W. Preston St.

SADAMU YOKAGAWA, M. D.

M. D., College of Okayama, 1908; M. D., University of Kyoto, 1917; Professor of Pathology, Medical College, Talwan, Formosa. *Helminthology.*

FELLOWS

JUANITA ELIZABETH DARRAH. Ivesdale, Ill. 2635 *N. Calvert St.*

A. B. and S. M., University of Illinois, 1913 and 1915; A. M., Columbia University, 1917. *Bio-Chemistry.*

MARY JANE HOGUE. West Chester, Pa. 821 *N. Charles St.*

A. B., Goucher College, 1905; Ph. D., University of Würzburg, 1909. *Protozoology.*

IDA WILLIAMS PRITCHETT. Baltimore, Md. *Homewood Apts.*

A. B., Bryn Mawr College, 1914. *Immunology.*

*ALICE RAYMOND. Leominster, Mass. 312 *W. Monument St.*

A. B., Middlebury College, 1910. *Statistics.*

HOMER WILLIAM SMITH. Denver, Colo. 35 *E. 25th St.*

A. B., University of Denver, 1917. *Physiology.*

(5)

ROCKEFELLER FOUNDATION SCHOLARS

REGINALD MYERS ATWATER. Colorado Springs, Colo.

A. B., Colorado College, 1914; M. D., Harvard University, 1918; C. P. H., Johns Hopkins University, 1920.

2755 *W. North Av.*

GARLAND HOWARD BAILEY. Giatto, W. Va. 1512 *N. Caroline St.*

S. B., West Virginia University, 1915; M. D., Johns Hopkins University, 1920.

†WILLIAM CHARLES BOECK. Olivia, Minn.

S. B., Carleton College, 1915; A. M., and Ph. D., University of California, 1916, and 1918.

CHARLES NELSON LEACH. New York City. 1109 *St. Paul St.*

A. B. and M. D., Stanford University, 1909 and 1913.

KENNETH FULLER MAXCY. Baltimore, Md. 905 *Cathedral St.*

A. B., George Washington University, 1911; M. D., Johns Hopkins University, 1915.

NORMAN RUDOLPH STOLL. Detroit, Mich. 27 *E. Mt. Vernon Pl.*

S. B., Mount Union College, 1915; S. M., University of Michigan, 1918.

JOHN JOSEPH SZYMANSKI. Passaic, N. J. 715 *St. Paul St.*

A. B., St. John's College (Brooklyn), 1910; M. D., Johns Hopkins University, 1914.

(7)

* Resigned March 1, 1921.
† Resigned September 20, 1920.

STUDENTS, 1920-1921

CANDIDATES FOR THE DEGREE OF DOCTOR OF PUBLIC HEALTH

RUFINO ABRIOL. Manila, P. I. *Fort McHenry, Baltimore.*

M. D., University of Illinois, 1913; D. T. M., University of the Philippines, 1916.

REGINALD MYERS ATWATER. Colorado Springs, Colo.

A. B., Colorado College, 1914; M. D., Harvard University, 1918; C. P. H., Johns Hopkins University, 1920; *Rockefeller Foundation Scholar.*

2755 *W. North Av.*

GARLAND HOWARD BAILEY. Giatto, W. Va. 1512 *N. Caroline St.*

S. B., West Virginia University, 1915; M. D., Johns Hopkins University, 1920; *Rockefeller Foundation Scholar.*

ORVILLE GRAHAM BROWN. Washington, D. C. 1 *E. 21st St.*

M. D., Columbia University, 1900; Lieut.-Col., Medical Corps, U. S. A.

JOHN COLLINSON. Baltimore, Md. 16 *W. Saratoga St.*

A. B., St. John's College, 1907; M. D., Johns Hopkins University, 1911.

JAMES ANGUS DOULL. New Glasgow, Nova Scotia.

A. B. and M. D. C. M., Dalhousie University, 1911 and 1914; D. P. H., University of Cambridge, 1919.

12 *E. Biddle St.*

GEORGE CLARK DUNHAM. Portland, Ore. *Greenway Apts.*

M. D., University of Oregon, 1914; Major, Medical Corps, U. S. A.

VALCOULON LEMOYNE ELLICOTT. Baltimore, Md. *Melvale.*

S. B., Massachusetts Institute of Technology, 1916; M. D., Johns Hopkins University, 1920.

JOHN BLACK GRANT. New York City. 3040 *St. Paul St.*

A. B., Acadia College, 1912; M. D., University of Michigan, 1917.

MORRILL LEONARD ILSLEY. Washington, D. C. 1431 *Park Av.*

A. B., Colby College, 1917; Fourth Year Medical Student, Johns Hopkins University.

*CHONG EANG LIM. Fukien, China. 1008 *Madison Av.*

M. B. and S. B., Hong Kong University, 1916.

*KENNETH FULLER MAXCY. Baltimore, Md. 905 *Cathedral St.*

A. B., George Washington University, 1911; M. D., Johns Hopkins University, 1915. *Rockefeller Foundation Scholar.*

JOHN WILLIAM MEEHAN. York, Neb. 36 *W. 25th St.*

A. B. and A. M., St. Mary's College, 1904 and 1906; M. D., Creighton University, 1908; Major, Medical Corps, U. S. A.

* Absent on leave during first trimester.

*Ralph Welty Nauss. Greenville, O.

S. B., Ohio State University, 1901; M. D., Northwestern University, 1905; D. P. H., University of Pennsylvania, 1916.

*Frank Oldt. Dayton, O. 20 *E. Mt. Vernon Pl.*

A. B., Otterbein College, 1901; M. D., Ohio Medical University, 1905.

Regino Padua y Gaerlan. S. Juan, Union, P. I. 1203 *Madison Av.*

M. D. and Dr. T. M., University of the Philippines, 1915 and 1918.

Frank Gordon Pedley. Montreal, Canada. 1914 *Eutaw Pl.*

A. B. and M. D. C. M., McGill University, 1913 and 1916.

John Joseph Szymanski. Passaic, N. J. 715 *St. Paul St.*

A. B., St. John's College (Brooklyn), 1910; M. D., Johns Hopkins University, 1914. *Rockefeller Foundation Scholar.*

Luis Felipe Turriago. Bogota, Colombia.

B. Ph. e Lett., Collegium Mayor de Nuestra Senora del Rosario, 1909; M. D., University of Bogota, 1917.

Charlotte Condict Van Winkle. Rutherford, N. J.

A. B., Smith College, 1914; Fourth-Year Medical Student, Johns Hopkins University.

733 *N. Broadway.*

Eugene Rudolph Whitmore. Washington, D. C. 1335 *H St., N. W.*

S. B., University of Wisconsin, 1896; M. D., University of Illinois, 1899; Professor of Bacteriology, George Washington University; Lieut-Col., U. S. A., Retired.

George Huntington Williams. Baltimore, Md. 803 *Cathedral St.*

A. B., Harvard University, 1915; M. D., Johns Hopkins University, 1919.

(22)

CANDIDATES FOR THE DEGREE OF DOCTOR OF SCIENCE IN HYGIENE

Donald Leslie Augustine. Kasson, Minn. 1720 *Linden Av.*

S. B., Macalester College, 1918. *Helminthology.*

Clennie Elsie Bailey. Terre Haute, Ind. 2916 *Allendale Rd.*

A. B., Indiana State Normal School, 1918. *Immunology.*

Elery Ronald Becker. Rocky Ford, Colo. 1720 *Linden Av.*

A. B., University of Colorado, 1921. *Protozoology.*

Katherine Ellen Connelly. Terre Haute, Ind. 13 *E. Read St.*

A. B., Indiana State Normal School, 1918. *Physiology.*

Hobart William Cromwell. Center Point, Ind. 4101 *Penhurst Av.*

A. B., Indiana State Normal School, 1917. *Immunology.*

Juanita Elizabeth Darrah. Ivesdale, Ill. 2635 *N. Calvert St.*

A. B. and S. M., University of Illinois, 1913 and 1915; A. M., Columbia University, 1917. *Bio-Chemistry.* Fellow, 1920-1921.

---

* Absent on leave during first trimester.

FLORENCE WORDEN DIXON. Missoula, Mont. 13 *E. Read St.*
A. B., University of Montana, 1920. *Bacteriology.*

WILLIAM THURBER FALES. Malden, Mass. 2936 *Clifton Av.*
S. B., Massachusetts Institute of Technology, 1917; C. P. H., Harvard University and Massachusetts Institute of Technology School of Public Health, 1920. *Epidemiology.*

MARY GOVER. Baltimore, Md. 307 *E. 30th St.*
A. B., Goucher College, 1913; A. M., Johns Hopkins University, 1917. *Statistics.*

VICTOR EMANUEL LEVINE. Omaha, Neb.
A. B., College of the City of New York, 1909; A. M. and Ph. D., Columbia University, 1911 and 1914. *Bio-Chemistry.*

HENRIETTA LISK. Fort McCoy, Fla. 817 *Park Av.*
S. B. and S. M., Florida State College, 1907 and 1909; A. M., Columbia University, 1917. *Bacteriology.*

JOHN RICE MINER. Baltimore, Md. *Towson.*
A. B., University of Michigan, 1913. *Statistics.*

EDITH EVELYN NICHOLLS. Baltimore, Md. 3409 *Guilford Ter.*
A. B., Smith College, 1919. *Physiology.*

ELLA HUTZLER OPPENHEIMER. Baltimore, Md.
A. B., Goucher College, 1918. *Physiology.*
9 *Lawina Rd., Forest Pk.*

SAMUEL PITLIK. Worcester, Mass. 14 *N. Chester St.*
A. B., Clark College, 1917; A. M., University of Chicago, 1918. *Statistics.*

HORACE MANN POWELL. Terre Haute, Ind. 4002 *Ridgewood Av.*
A. B., Indiana State Normal School, 1914. *Immunology.*

IDA WILLIAMS PRITCHETT. Baltimore, Md. *Homewood Apts.*
A. B., Bryn Mawr College, 1914. *Immunology.* Fellow, 1920-1921.

ALICE RAYMOND. Leominster, Mass.
A. B., Middlebury College, 1910. *Statistics.* Fellow, 1920-1921.

HOMER WILLIAM SMITH. Denver, Colo. 35 *E. 25th St.*
A. B., University of Denver, 1917. *Physiology.* Fellow, 1920-1921.

NORMAN RUDOLPH STOLL. Detroit, Mich. 27 *E. Mt. Vernon Pl.*
S. B., Mount Union College, 1915; S. M., University of Michigan, 1918. *Helminthology. Rockefeller Foundation Scholar.*

JOSEPH CHARLES SWENARTON. Washington, D. C. 829 *Whittier Pl.*
S. B., Pennsylvania State College, 1918. *Bacteriology.*

CANDIDATES FOR THE DEGREE OF BACHELOR OF SCIENCE IN HYGIENE

CHARLES RAYMOND COX. Baltimore, Md. *Lutherville.*
Student in Johns Hopkins University, 1918-1919.

MARGARET VON TORNEY FRANCE. Baltimore, Md. 219 *W. Lanvale St.*
A. B., Bryn Mawr College, 1919.

MARTIN FROBISHER, JR. Englewood, N. J. 2306 *Harlem Av.*
Student in Cornell University, 1916-1917 and 1919-1920.

WINIFRED ANDERSON GOODWIN. Grosse Ile, Mich. *Cecil Apts.*
A. B., University of Michigan, 1914.

MARIE LOUISE KOCH. Baltimore, Md. 2524 *Maryland Av.*
Student, Johns Hopkins University, 1918-1919.

GLADYS NEWMAN. Buffalo, N. Y. 4025 *Belle Av.*
A. B., Oberlin College, 1917.

ANNE CHRISTINE SHAMBURGER. Star, N. C. *Y. W. C. A.*
Student, Guilford College, 1918-1920.

DAVID HENRY SHELLING. Hartford, Conn. 404 *N. Broadway.*
Student, Loyola University, 1917-1918, and Trinity College (Conn.), 1918-1919.

OLIVE CUSHING SMITH. Baltimore, Md. 4 *E. Biddle St.*
Student in Goucher College, 1914-1916 and Johns Hopkins University, 1919-1920.

(9)

CANDIDATES FOR THE CERTIFICATE IN PUBLIC HEALTH

CHARLES NELSON LEACH. New York City. 1109 *St. Paul St.*
A. B. and M. D., Leland Stanford University, 1909 and 1913. *Rockefeller Foundation Scholar.*

JOHN ARTHUR FRANKLIN PFEIFFER. Baltimore, Md.
M. D., Baltimore Medical College, 1908; A. M. and Ph. D., George Washington University, 1916 and 1918.
1112 *N. Stricker St.*

FERDINAND OSCAR REINHARD. Baltimore, Md. 1509 *Bolton St.*
A. B. and M. D., Johns Hopkins University, 1908 and 1914.

RICARDO RIVAS VIDES. San Salvador, C. A. 1112 *Whitelock St.*
S. B., El Salvador Institute, 1906; M. D., El Salvador University, 1916.

(4)

SPECIAL STUDENTS

GERMAN ABADIA. Bogota, Colombia.
B. Ph. e Lett. Colegio Nacional de S. Bartolome, 1910; M. D., Universidad Nacional de Columbia, Bogota, 1918. *Entomology, Parasitology.*

ANNA MEDORA BAETJER. Baltimore, Md. 500 *Roland Av.*
A. B., Wellesley College, 1920. *Anatomy; Histology; Physiological Hygiene.*

CLAUDE HEMAN BARLOW. Shaohsing, China. 27 *E. Mt. Vernon Pl.*
M. D., Northwestern University, 1906. Diploma, London School of Tropical Medicine, 1914. *Helminthology,*

RALPH EDWARD BARNES. Lawrence, Kans. 1102 *N. Charles St.*
M. D., Keokuk Medical College (Iowa State Univ.), 1908. *Bacteriology; Public Health Administration.*

ROLLO HERBERT BRITTEN. Riverdale, Md.
A. B., Harvard University, 1912. *Statistics.*

FREDERICK HARRISON BUSBY. San Francisco, Cal.
A. B. and M. D., University of Michigan, 1909 and 1920. *Parasitology.*

CHARLES FRANKLIN ELVERS. Baltimore, Md. *Arlington.*
Student, Maryland State College, 1915-1916. *Bacteriology; Parasitology.*

ENRIQUE ENCISCO RUIZ. Bogota, Colombia. 216 *W. Madison St.*
M. D., Faculdade de Medicina, Bogota, 1918. *Bacteriology; Medical Zoology.*

OLYMPIO OLIVEIRO RIBEIRO DA FONSECA. Rio Janeiro, Brazil.
M. D., Faculdade de Medicina, Rio Janeiro, 1915. *Mycology.*

RUTH FOSTER. Boston, Mass. 1228 *Madison Av.*
Anatomy; Bacteriology; Histology; Pathology.

GABRIEL GARZON COSSA. Vera Cruz, Mexico. 1318 *McCulloh St.*
M. D., National University of Mexico, 1913. *Entomology; Parasitology.*

GEORGE GARDNER HAMPTON. Tupelo, Miss.
M. D., Tulane University, 1918. *Parasitology.*

VÁCLAV HEC. Plzeň, Czechoslovakia. 943 *Madison Av.*
M. D., University of Prague, 1920. *Epidemiology; Immunology; Statistics.*

MARY CUSHING HOWARD. Baltimore, Md. 835 *University Parkway.*
Student in Bryn Mawr College, 1917-1918 and Johns Hopkins University. 1918-1920. *Statistics.*

LAURA BELLE KEISKER. Louisville, Ky. 2916 *Allendale Rd.*
M. D., University of Louisville, 1902. *Bacteriology; Helminthology; Entomology.*

ZDENEK FRANK KLAN. Prague, Czechoslovakia.
Ph. D., University of Prague, 1920. *Bacteriology; Chemical Hygiene.*

WALTER EMERY LIBBY. Wuhu, Anwhei, China. 2041 *Harlem Av.*
A. B., Bates College, 1908; M. D., University of California, 1912. *Parasitology.*

ALEXANDER LYNN MCKAY. Toronto, Canada.
A. B. and M. B., University of Toronto, 1916 and 1920. *Parasitology.*

MARY ARIAN MARCUS. Baltimore, Md.
Student, Tufts College Medical School, 1914-1916; Adelphi College, 1919-1920. *Chemical Hygiene; Physiological Hygiene.*

HUGO MUENCH, JR. St. Louis, Mo.
A. B., Cornell University, 1915; M. D., Washington University, St. Louis, 1918. *Parasitology.*

HENRY EDWARD NILES. Baltimore, Md. 2010 *Edgewood St.*
A. B., Johns Hopkins University, 1920. *Statistics.*

HYNEK JAN PELC. Prague, Czechoslovakia.
M. D., University of Prague, 1919. *Statistics.*

BOHUSLAV POUR. Prague, Czechoslovakia. 813 *N. Howard St.*
M. D., University of Prague, 1913. *Bacteriology; Epidemiology; Immunology; Physiological Hygiene; Statistics.*

BERYL LILLIAN REED. Baltimore, Md. 3409 *Duval Av.*
Statistics.

ROBERT HICKMAN RILEY. Catonsville, Md. 16 *W. Saratoga St.*
S. B. and M. D., University of Oklahoma, 1909 and 1913. *Statistics, Epidemiology.*

JUAN SEGOVIA. San Salvador, C. A. 1026 *N. Eutaw St.*
M. D., San Salvador University, 1912. *Immunology; Entomology; Protozoology.*

JAMES MCCANN STODDARD. Baltimore, Md. 1732 *Poplar Grove St.*
S. B., Wabash College, 1898; M. D., Medical College of Indiana, 1902. *Bacterology; Public Health Administration.*

ALAN CALLENDER SUTTON. Baltimore, Md. 3212 *Abell Av.*
A. B. and M. D., Johns Hopkins University, 1912 and 1916. *Statistics.*

NELSON JOHN THOMAS. Wheeling, W. Va. 1803 *N. Broadway.*
Student, Bethany College, 1918-1919. *Bacteriology.*

ANDREW JACKSON WARREN. Hillsboro, N. C.
A. B. and M. D., University of Michigan, 1909 and 1920. *Parasitology.*

WILLIAM ALOYSIUS WHITTLE. Baltimore, Md. 4634 *York Rd.*
Bacteriology.

DAVID BRUCE WILSON. Toronto, Canada.
A. B. and M.D, University of Toronto, 1916 and 1920. *Parasitology.*

HSIANG-FONG WU. Ka-Shing, China.
M. D., The Special Medical School of Chiba, Japan, 1915. *Immunology; Protozoology.*

SPECIAL STUDENTS REGISTERED FOR THE INTENSIVE COURSE

GEORGE DOUGLAS ANDREWS. Harrisburg, Pa.

District Engineer, State Department of Health, Pennsylvania.

ELBERT MARTIN BOND. Central Aguirre, P. R.

M. D., Hahnemann Medical College, 1908; Medical Director, Central Aguirre Sugar Company.

JOSIAH SLICER BOWEN. Baltimore, Md.

M. D., University of Maryland, 1903; Deputy State Health Officer, Fourth Sanitary District of Maryland.

ALFRED DANIEL BROWN. Birmingham, Ala.

Chief Sanitary Officer for Jefferson County, Alabama.

JOHN MOORE CAMPBELL. Harrisburg, Pa.

M. D., University of Pennsylvania, 1905; Chief Medical Inspector, State Department of Health, Pennsylvania.

JOHN WESLEY COX. Clarendon, Va.

M. D., Syracuse University, 1902; Associate Epidemiologist, U. S. P. H. S.; Field Director, Virginia State Board of Health; County Health Officer for Arlington County.

CHARLES ALVIN EMERSON. Harrisburg, Pa.

A. B., Beloit College, 1903; S. B., Massachusetts Institute of Technology, 1905; C. E. (Hon.), Pennsylvania College, 1916; Chief Engineer, State Department of Health, Pennsylvania.

SAMUEL JAYNE FORT. La Plata, Md.

M. D., University of Pennsylvania, 1882; Deputy State Health Officer, Sixth Sanitary District of Maryland.

IVAN MAXWELL GLACE. Harrisburg, Pa.

District Engineer, State Department of Health, Pennsylvania.

WILLIAM ARNOLD GUNTHER. Cumberland, Md.

Director, Coöperative Laboratory of Allegany and Garrett Counties, State Department of Health, Maryland.

EDGAR CLAY HARPER. Martinsville, Va.

M. D., Medical College of Virginia, 1916; Field Agent, U. S. P. H. S.; Director, Virginia State Board of Health; County Health Officer for Henry County.

JOHN LEE HYDRICK. Spartanburg, S. C.

A. B., Wofford College, 1908; Oxford University, 1908-1911; M. D., Jefferson Medical College, 1915; Foreign Service, International Health Board, 1916-.

WILLIAM SHIREY KEISTER. Charlottesville, Va.

A. B., and A. M., Roanoke College, 1907, and 1910; M. D., Johns Hopkins University, 1914; Health Officer for Albemarle County, State Board of Health, Virginia.

CHARLES HAROLD KIBBEY. Birmingham, Ala.

M. D., Kentucky School of Medicine, 1895; Director of Sanitation, Tennessee Coal, Iron and Railroad Company.

COLEMAN BROWN MARK. Harrisburg, Pa.

District Engineer, State Department of Health, Pennsylvania.

GEORGE CLARK MARLETTE. Hayneville, Ala.

S. B. and M. D., University of Alabama, 1908, and 1916; County Health Officer, Alabafa State Board of Health.

WILLIAM COLVIN MILLER. Harrisburg, Pa.

M. D., University of New York, 1888; Chief, Division Public Health Education, State Department of Health, Pennsylvania.

HOWARD EUGENE MOSES. Harrisburg, Pa.

A. B., Dickinson College, 1898; Chief, Waterworks and Sewerage Section, Engineering Division, State Department of Health, Pennsylvania.

CLAUDE LEONIDAS MURPHREE. Gadsden, Ala.

A. B., Walnut Grove College, 1906; M. D., Birmingham Medical College, 1902; Health Officer for Etowah County, State Department of Health, Alabama.

SOLON NUNEZ. San Jose, C. R.

M. D., University of Geneva, 1916; Assistant Director, Department of Ancylostomiasis, Costa Rica.

CHARLES LYNDON OUTLAND. Tarboro, N. C.

M. D., Medical College of Virginia, 1917; Field Agent, U. S. P. H. S.; Health Officer, State Board of Health, North Carolina.

PAUL GODWIN PARKER. Jackson, N. C.

M. D., Medical College of Virginia, 1916; Health Officer for Northampton County, State Department of Health, North Carolina.

THOMAS JARVIS ROBINSON. Warrenton, Va.

Field Agent, U. S. P. H. S.; Field Director, Virginia State Board of Health; Health Officer for Fauquier County, Virginia.

CHARLES WALTON SHELDON. Tioga, Pa.

M. D., Medical College of Philadelphia, 1904; Supervising Medical Director, State Department of Health, Pennsylvania.

LILLIAN HERRALD SOUTH. Louisville, Ky.

A. B., Potter College, 1896; M. D., Woman's Medical College, 1904; Director, Bureau of Bacteriology and Epidemiology, State Board of Health, Kentucky; Professor of Bacteriology, School of Public Health, University of Louisville.

WILLIAM CARTER STONE. Ellicott City, Md.

M. D., Baltimore Medical College, 1903; Deputy State Health Officer, Third Sanitary District of Maryland.

LEWIS OLDS TAYNTOR. Salisbury, Md.

Acting Deputy State Health Officer, Tenth Sanitary District of Maryland.

CHARLES RANDOLPH TRUITT. Salisbury, Md.

M. D., University of Maryland, 1891; Health Officer for Wicomico County, Maryland.

LEWIS KLAIR WOODWARD. Westminster, Md.

M. D., Hahnemann Medical College (Philadelphia), 1899; Executive Secretary, State Board of Health for Carroll County; Health Officer for Westminster District, Maryland.

SUMMARY

Fellows by Courtesy	2
Fellows	5
Rockefeller Foundation Scholars	7
Candidates for the degree of Dr. P. H.	22
Candidates for the degree of Sc. D. in Hygiene	21
Candidates for the degree of S. B. in Hygiene	9
Candidates for the Certificate in Public Health	4
Special Students, including students in the Intensive Course	62
	132
Duplicates	10
Total	122

ADVISORY BOARD OF THE FACULTY

FRANK J. GOODNOW, *President*

CARROLL G. BULL	WILLIAM H. HOWELL
WILLIAM W. FORD	*Assistant Director*
WADE H. FROST	ELMER V. MCCOLLUM
JOHN H. GREGORY	ARTHUR NEWSHOLME
ROBERT W. HEGNER	RAYMOND PEARL

WILLIAM H. WELCH, *Director*

By resolution of the Board of Trustees this Board is "instructed to report to the Trustees from time to time their suggestions and to prepare and carry forward the proper arrangements for the instruction and graduation of students in the School."

EXECUTIVE COMMITTEE

THE PRESIDENT OF THE UNIVERSITY

THE DIRECTOR — THE ASSISTANT DIRECTOR

LIBRARY COMMITTEE

ELMER V. MCCOLLUM	GEORGE H. ROBINSON
Chairman	REYNOLD A. SPAETH
LOWELL J. REED	ELISABETH S. THIES

THE LIBRARIAN OF THE UNIVERSITY, *ex officio*

COMMITTEE ON APPLICATIONS

CARROLL G. BULL	ROBERT W. HEGNER
WILLIAM W. FORD	WILLIAM H. HOWELL
	Chairman

COMMITTEE ON PUBLICATIONS

ROBERT W. HEGNER	WILLIAM H. HOWELL
Chairman	RAYMOND PEARL

OTHER OFFICERS

MARY LOUISE DURHAM, *Secretary*	1700 *St. Paul St.*
ELISABETH S. THIES, *Librarian*	2122 *Chelsea Av.*
ETHEL NORRIS, *Artist*	10 *W. 25th St.*

GENERAL STATEMENT AND REQUIREMENTS FOR ADMISSION

SCHOOL OF HYGIENE AND PUBLIC HEALTH

GENERAL STATEMENT

The need of larger and better opportunities in this country for training and investigation in the science and art of Hygiene and Public Health has long been recognized. With the rapid advance in our knowledge of the causes and mode of spread of infectious diseases has come a correspondingly increased power of prevention which has greatly stimulated interest in preventive medicine and has strengthened the demands for improved standards of public health organization and administration. Especially urgent is the need for men and women trained to undertake work in this field which already offers attractive careers for those properly qualified, and will offer opportunities in larger measure as the necessity for such training is more widely appreciated. It was a source of great gratification to the Johns Hopkins University to be enabled to open in October, 1918, a School of Hygiene and Public Health designed to meet the need thus briefly indicated.

In June, 1916, the Rockefeller Foundation of New York notified the President of the Johns Hopkins University that the Foundation was prepared "to co-operate with the University in the establishment of a School of Hygiene and Public Health for the advancement of knowledge and the training of investigators, teachers, officials and other workers in these fields."

This offer was accepted by the University, and on June 12, 1916, the President of the University made the formal announcement that the Board of Trustees had authorized the establishment of a School of Hygiene and Public Health as part of the University. Dr. William H. Welch was appointed

Director and Dr. William H. Howell was named to assist in the work of organization.

The history of the events leading up to this action is in brief as follows: On October 16, 1914, the General Education Board called a conference of leading authorities in public health work to consider the general question of the training of qualified sanitarians and public health officials. At the request of this conference Dr. W. H. Welch and Mr. Wickliffe Rose undertook to prepare a plan for an institute of public health and hygiene for submission to the General Education Board and the members of the conference. This report was made to the General Education Board on May 27, 1915. Subsequently, on the instruction of the Board, a committee was appointed to determine where such an institution could be located most advantageously. Acting upon the information gathered by this committee the Rockefeller Foundation decided "largely by reason of the facilities, organization and ideals of its Medical School," to establish a School of Hygiene and Public Health at the Johns Hopkins University.

The main objects of the School are to establish courses for the training of qualified persons for public health work, to promote investigative work in hygiene and preventive medicine and provide opportunities for the training of investigators in these subjects, and to develop adequate means for the dissemination of sound hygienic knowledge. Special and mutual advantages arise from the close relationship between the School and the International Health Board of the Rockefeller Foundation, particularly in field work and in the opportunities for investigation and training in tropical medicine and the control of special diseases. As outlined at present the work of the School is organized under the following divisions: a department of bacteriology, serology and immunology; a department of medical zoölogy; a department of epidemiology; a department of biometry and vital statistics; a department of chemical hygiene; a department of physiological hygiene; a department of public health

administration; a department of sanitary engineering. Provision is made for practical work in connection with federal, state and municipal departments of health and for instruction in mental and social hygiene. Men and women are admitted on the same terms.

A suitable lot of land has been purchased at the corner of Monument and Wolfe streets, immediately adjacent to the grounds of the Medical School and the Johns Hopkins Hospital. Plans have been made for the erection of buildings upon this lot to contain the laboratories, library, museum and offices of the School. Pending the erection of these buildings the School has been established in a large laboratory, 310-312 West Monument street, formerly occupied by the physical department of the Johns Hopkins University. This building and some of the adjacent laboratories have been completely renovated and equipped for the use of the School. Instruction began October 1, 1918.

COURSES AND DEGREES

I. Course leading to the degree of Doctor of Public Health (Dr. P. H.):

The course consists of specified work throughout two years, together with a summer spent in field work in some organized public health service. The specified work comprises courses in the following subjects: advanced bacteriology and immunology; the chemical and bacteriological analysis of foods, water and sewage; statistical methods; sanitary and administrative law; nutritional and environmental hygiene; the history of hygiene; medical zoölogy; epidemiology; the administrative control of disease; sanitation and public health organization; sanitary engineering, and social and mental hygiene. It is understood that these requirements may be modified to suit the needs or aptitudes of special students. An essay based upon individual study of some problem or subject in hygiene is to be submitted before receiving the

degree. The following groups of students will be accepted as candidates for this degree:

a. Graduates of approved medical schools who have had a liberal education as evidenced by a degree in arts or science, or its equivalent. These candidates will be required to pursue a two-years' course together with one summer of practical work in an organized public health service.

b. Students who have completed satisfactorily three years of the course in an approved medical school and who have had a liberal education as evidenced by a degree in arts or science, or its equivalent, may be accepted as candidates for this degree while completing the course in medicine. Arrangements have been made with the Johns Hopkins Medical School whereby a student may receive his degree in medicine on the completion of four years of work, and his degree in public health after an additional or fifth year of work in the School of Hygiene and Public Health, together with a summer spent in practical field work. In their fourth year these students may fill all of their elective hours with subjects taken from the curriculum of the School of Hygiene and Public Health. A combined course of a similar character may be obtained with other medical schools by special arrangement.

II. Courses leading to the degree of Doctor of Science in Hygiene:

The underlying object in the arrangement of these courses is to train specialists in the various departments of public health work, and to afford an opportunity for those not graduated in medicine to take part in such work. The candidate is expected to absolve certain courses of a basic character, but for the most part his time is devoted to advanced work in some one department. This work must include a special

investigation of some problem the results of which are to be presented in the form of a dissertation. In view of the special requirements and the time implied in completing successfully a definite research, it may be assumed that after obtaining the bachelor's degree at least three years of work will be necessary to meet all the requirements of the degree of Doctor of Science in Hygiene.

To be accepted as a candidate for this degree the following requirements must be fulfilled.

a. A degree in arts or science or its equivalent, as evidence of a liberal education.

b. Certificates of the satisfactory completion of adequate courses in chemistry, physics, and biology.

c. Certificates of the satisfactory completion of adequate courses in anatomy, physiology, and pathology.

d. In exceptional cases, on the recommendation of the head of a department, a candidate may be accepted who offers in place of (c) satisfactory evidence of special training of an advanced character in subjects fundamental to his main field of work.

After acceptance as a candidate the student will be assigned for advice and guidance to the head of the department in which he will specialize. In order to be recommended for the degree the candidate must pass satisfactory written and oral examinations in his major subject and must present a dissertation, in prescribed form, embodying the results of an independent investigation. This dissertation must be presented to the Director, who will refer it for examination to a special committee. If the report of the committee is favorable the candidate will be asked to appear before the faculty for the oral examination. The dissertation must be published in whole or in part within a year after its acceptance by the faculty.

III. Course leading to the degree of Bachelor of Science in Hygiene:

The course requires two years of work taken partly in the School of Hygiene and Public Health and partly in the Medical School. The first year's work consists of courses in physiology, bacteriology, anatomy and histology, sanitary chemistry and physiology as applied to hygiene. The second year's work consists of courses in advanced bacteriology, immunology, parasitology, nutritional hygiene, physiological hygiene, sanitary engineering, pathology, statistics and epidemiology. The arrangement of these courses is such as to permit some specialization. The student may select work preparatory to a position in a public health laboratory or industrial or educational welfare work or to a position along statistical and epidemiological lines. The requirements for matriculation in these courses are as follows:

a. Certificate of matriculation in an approved college and the completion of at least two years of college work.
b. Certificates of adequate courses in biology, physics, and chemistry, including organic chemistry.

By an adequate course is meant in physics one year of college work covering approximately 100 hours of laboratory and 100 hours of class work; in biology one year of college work covering approximately 150 hours of laboratory and 100 hours of class work; in chemistry one to two years of college work covering approximately 250 hours of laboratory and 120 hours of class work.

IV. Course leading to a Certificate in Public Health:

A certificate in public health may be awarded to qualified persons after one year of residence and the satisfactory completion of lectures and laboratory courses equivalent in amount to the work of a full academic year. The courses followed must include practical work in bacteriology, sanitary engineering, statistics and epidemiology and in such other courses as may be approved by the faculty.

Candidates for these certificates must be graduates in medicine of an approved medical school or graduates in arts or

science who can furnish satisfactory evidence of previous training in the physical and medical sciences.

V. Intensive Course for Public Health Officers.

This course is offered during the last six weeks of the fall trimester. For the session of 1921-1922 it begins November 14th and ends December 23rd. It is intended to meet the needs of public health officers wishing to increase their knowledge of hygiene and public health; and of physicians proposing to enter into public health work who find it impracticable to devote a year or two years to a full course of instruction.

The course of instruction consists chiefly of conferences and demonstrations, supplemented by visits of inspection to important sanitary and industrial works, to schools, to centers of sanitary administration and to specialized clinics and welfare centers.

On each week day demonstrations or practical exercises occupy the hours from 9 to 1. The afternoons from 2 to 5 are given to conferences and lectures. On two evenings a week conferences on important phases of public health are held.

The fee for the courses is $50.00, payable on registration.

SPECIAL STUDENTS

An opportunity to use the facilities of the School will be granted to the following groups of special students not registered as candidates for a degree:

1. Public health officers who may wish to take one or more lecture or laboratory courses, or engage in the study of some special problem.
2. Other qualified persons who may wish to attend special courses or undertake research work and whose qualifications receive the formal approval of the faculty of the School.

THE DE LAMAR LECTURES IN HYGIENE

A series of popular lectures in personal and public hygiene is arranged each session. The object of these lectures is to bring before the public the general facts and points of view of modern hygiene, with the hope that in this way the School may serve as a center for the distribution of useful knowledge in all matters pertaining to sanitation and preventive medicine. These lectures are supported from the fund bequeathed to the Medical School by Joseph R. De Lamar.

The course given during the session of 1920-1921 was as follows:

Dr. Victor G. Heiser
Director for the East of the International Health Board
on
The Halifax Health Program
Monday, October 18

Dr. Donald B. Armstrong
Executive Officer of the Framingham Community Health and Tuberculosis Demonstration
on
The Control and Prevention of Tuberculosis
Monday, November 8

Dr. Charles V. Chapin
Superintendent of Health, Providence, R. I.
on
The Evolution of Preventive Medicine
Monday, November 22

Dr. Haven Emerson
Former Commissioner of Health of New York City
on
How the Diagnosis of a Community's Health is Made
Monday, November 29

Dr. Charles W. Stiles
United States Public Health Service
on
Some Practical Aspects of the Subject of Soil Pollution
Monday, December 13

Dr. Edward C. Schneider
Professor of Biology, Wesleyan University
on
The Influence of High Altitudes on Man
Monday, December 20

Mr. William C. Hoad
Professor of Sanitary Engineering, University of Michigan
on
Some Relations of Engineering to Public Health
Monday, January 10

Sir Arthur Newsholme, M. D., K. C. B.
Resident Lecturer in Public Health Administration
Late Principal Medical Officer of the Local Government Board of England
on
National Changes in Health and Longevity
Monday, January 24

Dr. Livingston Farrand
Chairman, Central Committee, The American Red Cross
on
Volunteer and Unofficial Agencies in the Public Health Field
Monday, January 31

Dr. Richard P. Strong
Professor of Tropical Medicine, Harvard Medical School
on
The Economic Loss from Disease due to the War
Monday, February 7

Surgeon General Hugh S. Cumming
United States Public Health Service
on
The Activities and Opportunities of the Public Health Service
Monday, February 14

Dr. David L. Edsall
Professor of Clinical Medicine, Harvard Medical School
on
The Relation of Occupation to Health
Monday, February 28

Mr. Shelby M. Harrison
Director, Department of Surveys and Exhibits, Russell Sage Foundation
on
The Methods and Results of Public Health Surveys
Monday, March 7

Dr. Lawrason Brown
of Saranac Lake, New York
on
Certain Causative Factors in Pulmonary Tuberculosis
Monday, March 14

Dr. W. S. Rankin
State Health Officer, North Carolina State Board of Health
on
Certain Important Principles of State Health Administration
Monday, April 11

Dr. William H. Davis
Chief Statistician, Vital Statistics, Bureau of the Census
on
Birth Registration in the United States
Monday, April 25

Dr. C. C. Bass
Professor of Experimental Medicine, Tulane University
on
Control of Malaria by Curing Those Who Have It
Monday, May 9

Course in School Hygiene. In addition to this series of lectures a special course of lectures in school hygiene, dealing particularly with the subjects of nutrition and diet, has been arranged for the summer course of the Johns Hopkins University, given at Homewood in July and August. This course is given under the direction of Professor McCollum, and is supported from the De Lamar Fund.

SCHOLARSHIPS

A certain number of scholarships carrying free tuition are awarded annually by the Trustees of the University upon the recommendation of the faculty. These scholarships are awarded for one year, but may be renewed for a second year. Applications may be made to the Director of the School.

FELLOWSHIPS

Six research fellowships carrying each a stipend of $1,000, and exemption from all charges for tuition are awarded annually by the Trustees of the University upon the recommendation of the faculty. The conditions upon which these fellowships are awarded are as follows:

1. The applicant must have received his doctor's degree in medicine, science, philosophy or public health, or furnish evidence of experience and meritorious service in scientific work.
2. The holder of a fellowship must give his time primarily to investigative work, approved by some member of the staff of the School, and must be in residence during the academic year, unless permission is granted to him by the faculty to carry on his work elsewhere.
3. The application should be made prior to March 1st, in writing, addressed to the Director of the School of Hygiene and Public Health.

PUBLICATIONS

The annual catalogue and announcement is issued as the April number of *The Johns Hopkins University Circular.*

In June the researches published during the academic year by members of the staff and the advanced students are bound and issued as a volume of Collected Papers. The first volume of this series appeared in June, 1920. These volumes are distributed to public health laboratories and are on sale to individuals at $5.00 a volume.

The *American Journal of Hygiene* supported by an appropriation from the De Lamar bequest to the Medical School is published by the Johns Hopkins Press. Dr. W. H. Welch is Editor and Dr. Charles E. Simon Managing Editor. The journal is devoted to the publication of investigations in hygiene by workers in this country and abroad. The laboratory and field researches carried on in the School appear for the most part in this journal. Monographs on special subjects pertaining to hygiene and preventive medicine will be issued from time to time as supplementary numbers of this journal. For further information address the Managing Editor, School of Hygiene and Public Health, 310-312 W. Monument Street.

REGISTRATION AND CALENDAR

All students upon entering must report at the Director's office for registration and payment of fees.

The academic year is the same as in other departments of the University.

Instruction begins in the fall on the Tuesday nearest to the first of October. The graduating exercises are held on the third Tuesday of June. There are short recesses at Christmas and Easter.

Since instruction is arranged on a trimestral basis, it is possible for candidates for the degree of Doctor of Public Health or Doctor of Science in Hygiene to enter the School

at the beginning of any trimester, and to graduate at the end of any trimester. Formal bestowal of degrees takes place at the University Commencement in June and on Commemoration Day, February 22nd.

TUITION

The charge for tuition in the courses leading to a degree or a certificate is $250 per annum, payable at the office of the Director, in three instalments, one at the beginning of each trimester. For students taking special courses the charge for one trimestral course, including laboratory work, is $50.00. The charge for shorter courses will be arranged on application.

For further information address the Director of the School of Hygiene and Public Health, Johns Hopkins University, 310-312 W. Monument Street, Baltimore, Md.

DEPARTMENTS OF INSTRUCTION AND ANNOUNCEMENT OF COURSES

DEPARTMENTS OF INSTRUCTION

BACTERIOLOGY

William W. Ford, M. D., Associate Professor.
George H. Robinson, Ph. D., Associate.
Percy D. Meader, Ph. D., Instructor.
Linda B. Lange, M. D., Instructor.
Raymond C. Salter, Sc. D., Assistant.
————————, Assistant.

1. Sanitary Bacteriology. Dr. Meader, Dr. Lange. This course is designed to give students a fundamental training in bacteriology with special reference to sanitary bacteriology. It includes the making of the ordinary culture media, the preparation and use of stains, the microscopic study of organisms, and the methods of isolating and identifying the more common pathogenic and non-pathogenic bacteria. The methods of examining water, milk, sewage, and foods are considered in detail.

Students who have received training in chemistry, physics, and biology, are admitted to this course, and its completion qualifies students for the course in public health bacteriology.

2. Public Health Bacteriology. Dr. Ford, Dr. Robinson, Dr. ———. This course is designed especially for the training of students in the modern bacteriological methods employed in the diagnosis of the acute respiratory diseases, in the study of the infections of the intestinal tract, in genito-urinary infections and in the examination of water, milk, and foods for their sanitary quality. It includes the study of the pneumococcus, the influenza bacillus and the hemolytic streptococcus from sputum, the diphtheria bacillus from the secretions of the nose and throat, the meningococcus from the spinal fluid, and the etiological agents in gonorrhoea and syphilis. The newer methods for the cultivation of the tu-

bercle bacillus from sputum are demonstrated, and the isolation of the typhoid, paratyphoid, and dysentery bacilli is practiced as far as possible upon actual cases of disease. The standard methods employed in the examination of water, milk, and food are also included. Only those students will be admitted to this course who can present satisfactory evidence of proper training in elementary bacteriology.

3. Public Health Laboratory Practice. Dr. Salter. (Limited to six students—Prerequisite Bacteriology II). This course is designed to give students an opportunity to do the routine work of a public health bacteriological laboratory. Practice is offered in the bacteriological diagnosis of diphtheria, tuberculosis, typhoid fever, gonorrhoea, syphilis, pneumonia and rabies. The bacteriological examination of water, milk, canned goods, and feces, urine and blood is also carried out. The students will have opportunities to make reports, file records and become familiar with the problem of laboratory management.

4. Research in Bacteriology. Dr. Ford. Opportunity will be provided for advanced work and research in bacteriology in a variety of fields. Qualified students will be given problems to work out under the immediate supervision of the Associate Professor of Bacteriology, and opportunities will be offered to candidates for advanced degrees to prepare theses on special topics.

IMMUNOLOGY

Carroll G. Bull, M. D., Associate Professor.
Roscoe R. Hyde, Ph. D., Associate.
Leon C. Havens, M. D., Associate.
Ida W. Pritchett, A. B., Fellow.

1. Immunology I. Dr. Hyde. This course is designed for those who have not had previous training in serological reactions. Fifteen hours a week are devoted to laboratory work and three hours to lectures and conferences during one trimester. The laboratory work gives practical training in

(1) the various serological reactions, viz.: agglutination reactions, with bacteria and animal cells; precipitin reactions, particularly for identification of unknown bloods; complement fixation reactions, the Wassermann reaction and the fixation of complement with bacterial antigens; opsonic titrations, etc., (2) the preparation of the materials used in serological reactions, (3) the preparation of bacterial, antirabic and cow-pox vaccines, and (4) the production and standardization of immune sera, antimicrobic and antitoxic. Special attention is given to practical diagnostic methods.

2. Immunology II. Dr. Havens. This course is open to medical graduates and others who have had training in serological methods and the principles of immunity. Fifteen hours a week are devoted to laboratory work and three hours to lectures and conferences. The work is divided into three parts; (1) Serological reactions (see Immunology I), (2) A study of the manner in which disease-producing organisms produce their pathological effects and how the host defends itself against the invading organisms, certain bacteria being chosen to illustrate the various factors concerned in infections by different classes of organisms, e. g., the pneumococcus, typhoid and dysentery bacilli and the diphtheria bacillus, and (3) the preparation of a written review of the literature on some subject germane to the course and of current interest.

3. Immunology III. Dr. Bull and Miss Pritchett. Prerequisite, Immunology I or II or equivalent training. This course occupies one trimester eighteen hours a week. The work consists of doing a number of problems in the laboratory. The problems are arranged in groups, according to subject, from which the student selects a minimal number, certain problems being required. The group on diphtheria will serve as an illustration. Problem (1) Prepare diphtheria toxin for the Schick test, (2) Prepare a toxin-antitoxin mixture for the active immunization of man against diphtheria, (3) Do diphtheria virulence tests on six unknown cultures, (4) Determine the number of units per c. c. in a furnished specimen of diphtheria antitoxin. The student is required to

submit a written statement on each problem, giving a review of the literature on the subject, a detailed account of his own work and, in certain instances, samples of his preparations.

4. Opportunities are offered to candidates for advanced degrees to do thesis work under the direction of different members of the staff.

SANITARY ENGINEERING

John H. Gregory, S. B., Professor of Civil and Sanitary Engineering.

The course in sanitary engineering is given at Homewood in the Department of Civil Engineering, and will consist of nine hours a week, during one trimester, divided into lectures, conferences, laboratory and field work, and supplemented by reading. The course is designed to give the student a comprehensive general view of modern sanitary engineering practice. The time will be devoted largely to the main topics of water supply, water purification, sewerage and sewage disposal, with a discussion of modern methods for the collection and disposal of garbage and other municipal wastes. The laboratory exercises will include the study and discussion of existing sanitary works from photographs, lantern slides and working drawings, together with inspection trips in the field to typical water purification and sewage disposal works.

CHEMICAL HYGIENE

Elmer V. McCollum, Ph. D., Sc. D., Professor.
Alfred T. Shohl, M. D., Associate.
Mathilde Koch, S. M., Associate.
Nina Simmonds, S. B., Associate.
Ethel May Kinney, A. M., Assistant.
Madeline Spencer King, A. B., Assistant.
Juanita E. Darrah, S. M., Fellow.

Chemical Methods as Applied to Hygiene. Three courses are offered involving laboratory work. These are offered in different trimesters.

Chemical Hygiene I. Dr. A. T. Shohl. The course consists of laboratory work 15 hours per week, lectures and conferences during one trimester. The laboratory work includes the technic of biological chemistry as applied to the analysis of foods, water, and drugs, and the detection of adulterants. The lectures parallel the work of the laboratory, and deal with the problems of food chemistry and with the economic and hygienic aspects of foods. The conferences are planned to familiarize the student with the use of scientific journals.

Students must have had courses in qualitative, quantitative, and organic chemistry before being eligible to the course.

Chemical Hygiene II. Dr. A. T. Shohl. This course consists of 15 hours laboratory work and three conferences per week during one trimester. It deals with methods used for the study of metabolism. The student is given practice in methods for the analysis of blood, urine, and feces. Special attention is given to the interpretation of analytical data. The conferences will consist of reports on selected topics in metabolism. Students who have satisfactorily completed Chemical Hygiene I are eligible to this course.

Nutrition. Dr. E. V. McCollum. Three lectures or conferences weekly during one trimester. In this course will be given assigned readings. The more important researches which have contributed to present-day knowledge in this field are presented. The results of animal experimentation are correlated with human experience as far as possible. The special dietary properties of our natural food products are discussed and the evidence of the relation between the diet and health of certain large groups of people is presented.

Chemical Hygiene III. Dr. E. V. McCollum and Dr. A. T. Shohl. Those who have the necessary preliminary training and who desire to do work of special nature will be received at any time during the academic year.

MEDICAL ZOOLOGY

Robert W. Hegner, Ph. D., Associate Professor of Protozoology.
William W. Cort, Ph. D., Associate Professor of Helminthology.
William H. Taliaferro, Ph. D., Associate in Protozoology.
Francis M. Root, Ph. D., Associate in Medical Entomology.
Charles E. Simon, M, D., Lecturer in Medical Zoology.
Donald L. Augustine, B. S., Assistant in Helminthology.
Elery R. Becker, A. B., Assistant in Protozoology and Medical Entomology.
Mary J. Hogue, Ph. D., Fellow in Protozoology.

Medical Zoology is the study of animals that cause human disease, are of direct injury to man, or that disseminate disease producing organisms. It may conveniently be divided into three sections, Protozoology, Helminthology, and Medical Entomology. From a public health standpoint, the most important species of protozoa and helminths are parasitic and pathogenic to man. The phenomena presented by the parasitic species, however, can only be interpreted on the basis of a knowledge of free living species or those living in lower animals which are accessible for both observational and experimental studies. Emphasis is placed on the medical aspects of the invasion of man by parasitic animals. The insects and related organisms of public health interest act mostly as carriers of pathogenic organisms from diseased to healthy animals. Related to them are animal reservoirs such as the rat in the case of the plague flea. The department aims to prepare students for public health work in medical zoology and to train advanced students for teaching positions and research work.

1. Protozoology. Drs. Hegner, Taliaferro, and Simon. Three days per week during one trimester. The course consists of three lectures or conferences and fifteen hours of laboratory work per week. The aims are (1) to gain a general knowledge of the biology of the protozoa; (2) to become acquainted with pathogenic species and the diseases caused by them; (3) to learn methods of preventing the spread of path-

ogenic species by the control of the agents of transmission; (4) to acquire a knowledge of the problems presented by pathogenic species and the ability to solve them; thus laying the foundation necessary for carrying on original investigations, and making it possible to take charge of public health work in protozoology in any community, and to direct campaigns in cases of epidemics.

The lectures and conferences are devoted to the presentation and discussion by instructors and students of information obtained from original observations, from current literature, and from text and reference books.

In the laboratory the four classes of protozoa are considered separately, involving the study (1) of typical free-living species, (2) of species parasitic in lower animals and (3) a more detailed examination of species parasitic in man. Methods are given for collecting, cultivating and preparing for study both free-living and parasitic protozoa.

2. Animal Parasitology. Drs. Hegner, Cort, Taliaferro and Root. Three days per week during one trimester.

This course is designed especially for those who wish to gain a knowledge of the animal parasites of man in a short time. The more technical phases of protozoology, helminthology and medical entomology are emphasized. The student is taught to recognize the species of parasites pathogenic to man and the diseases caused by them; how to collect, prepare for study, examine, and cultivate the more important species; and the practical methods of prevention and control.

The lectures are supplemented by the required reading of scientific articles in periodicals and reference books.

The laboratory work includes the study of stages of the life histories of the parasites; methods of preparing material for study; methods of laboratory diagnosis, and the cultivation of parasites in lower animals and in artificial media.

3. Helminthology. Dr. Cort, Dr. Simon and Mr. Augustine. Three days per week during one trimester. This course aims (1) to give a general knowledge of the biology of the flatworms (Platyhelminthes), round worms (Nemat-

helminthes), and certain other worms; (2) to acquaint the student with pathogenic species and the diseases caused by them; (3) to supply practice in methods of diagnosis; (4) to present methods of preventing the spread of pathogenic species by the control of the agents of transmission; (5) to furnish a knowledge of the problems presented by pathogenic species that will enable the student to carry on original investigations or take charge of public health work in helminthology.

Lectures are given each day which cover (1) the classification, structure and life history of the worms parasitic in man and (2) the distribution, symptomatology, pathology, diagnosis and control of the diseases of man produced by parasitic worms.

The laboratory work includes a study of the general biology of the groups of parasitic worms which have human representatives and of the structure and life history of the parasitic worms of man and their close relatives. A careful study is made of the eggs of the human helminths to prepare the student for the diagnosis of these diseases. Whenever possible, living material is studied, the free stages of the worms are cultured and experimental life-histories are carried through.

A conference is held each week at which reports are given by members of the class on some of the more strictly medical and public health aspects of the subject. The literature of human helminthology is as far as possible placed at the disposal of the student and emphasis is placed on the consultation of original papers rather than text books.

4. Medical Entomology. Dr. Root and Mr. Becker. Three days per week during one trimester. This course is devoted chiefly to a study of the arthropods which transmit the bacteria, protozoa and worms that cause disease in man. The few arthropods which cause human disease directly are also considered. In this connection insect venoms are taken up and comparisons made with snake venoms.

The course aims: (1) to acquaint the student with the fundamentals of insect structure and classification; (2) to

enable him to distinguish the species which carry disease from the harmless species; (3) to give him a working knowledge of the life-cycles of harmful species, actual and potential, especial emphasis being placed on the relation of the life-cycle to control measures.

In order to include in the course all groups of insects which may become of sanitary importance, a few species which are known to carry only diseases of the lower animals are included in the subject-matter. In connection with the study of control measures, the question of animal reservoirs of human disease is taken up, as, for instance, the relation of rats to bubonic plague.

5. Investigations in Protozoology, Helminthology and Medical Entomology. Students who have had sufficient training may undertake original investigations in any of the above subjects. Small problems may be completed by properly qualified students in one trimester, but usually a year or more is required. Those who wish to elect any of these subjects as majors towards the degree of Doctor of Science in Hygiene or Doctor of Philosophy must plan their course so that a large part of their time may be devoted to research.

PHYSIOLOGICAL HYGIENE

William H. Howell, Ph. D., M. D., Professor.
Reynold A. Spaeth, Ph. D., Associate.
Arthur L. Meyer, M. D., Associate.
Janet H. Clark, Ph. D., Associate.
Ernest J. Caulfield, M. D., Assistant.
Homer W. Smith, A. B., Fellow.

By physiological hygiene is understood the application of the facts and principles of animal physiology to problems of personal and public hygiene. The important subjects of diet and nutrition are considered in the department of chemical hygiene. In the department of physiological hygiene the subjects taken up, in addition to a general course in animal physiology, are personal hygiene, the physiological effects

of exercise and fatigue, of variations in the composition and physical properties of the atmosphere, and of radiant energy of various kinds. The main purpose held in view is to furnish a scientific preparation for work in the fields of industrial and school hygiene. Course V, or an equivalent, is required as a preliminary to courses I, II, III and IV.

I. The Physiology of Work and Fatigue in Industry. Dr. Spaeth. The lectures during the first month of this course are devoted to a consideration of the theoretical and experimental aspects of muscular and mental work and fatigue. The remainder of the course deals with practical problems such as the limitation of scientific management; the length of the industrial work day; industrial accidents and fatigue; the standardization of industrial working conditions; physical examination of workers, and the physical, physiological and psychological standardization of industrial workers by trades and processes.

Approximately six weeks are taken up with laboratory training in physical, physiological and psychological standardization tests for industrial workers. This work is followed by class visits and surveys of local industries, with reports and seminar discussion. Three days weekly during the first trimester, 9 a. m. to 4 p. m.

II. The Physiological Action of Light, X-Rays, and other Radiations. Dr. Clark. The lectures in this course deal with the effects produced in the living cell by the action of heat, visible and ultraviolet light, x-rays and radium. In connection with the pathological effects of radiant energy on the eye, the subject of illumination is considered, particularly in its relation to hygienic conditions of lighting in schools and factories.

The laboratory work accompanying the lectures includes photometric measurements of the illumination in rooms and the candle power of different light sources; visual acuity determinations under different conditions of illumination, and measurements of errors of vision. In addition, visits of inspection are made to local schools and factories for the inve

tigation of lighting conditions. Three days weekly, 9 a. m. to 4 p. m. during the first half of the third trimester.

III. Respiration, Ventilation and Climatology. Dr. Meyer. The lectures consider the following topics: the composition of the atmosphere and the effect upon the body of the gases found in the atmosphere when present in abnormal concentrations, together with the effects of the various meteorologic elements, such as temperature, pressure and humidity; heat regulation and heat production in the body and the effects of high temperatures and humidity upon the body under artificial and natural (tropical) conditions; ventilation in its physiological relations, including a study of the effects of bad air, the laws of air currents, and the various types of ventilation employed in schools, factories, street cars, subways, etc.

The laboratory course is intended to familiarize the student with the methods of air analysis, including the quantitative determination of the presence of impurities, such as carbon monoxid, sulphur dioxid, and dust. Exercises are given also in the use of various instruments applicable to the study of air conditions, such as the hygrometer, the kata-thermometer, the anemometer, etc. Three days weekly, 9 a. m. to 4 p. m., during the second half of the third trimester.

IV. Personal Hygiene. Dr. Howell. Lectures upon the hygiene of the individual. The different organs of the body are considered with reference to the conditons that influence their functional activity favorably or unfavorably. Once weekly during the third trimester.

V. Animal Physiology. Dr. Caulfield. This course is intended primarily for candidates for the degree of Bachelor of Science in Hygiene. It comprises conferences and recitations covering the subject of animal or human physiology as usually given to medical students, and laboratory exercises. Three days weekly during the second trimester, 9 a. m. to 4 p. m.

VI. Journal Club. Dr. Howell. A journal club consisting of the instructors and advanced students in the de-

partments of physiological hygiene and in the department of physiology in the Medical School, meets once weekly throughout the year. The object of these meetings is to present and discuss recent experimental work in physiology.

VII. Research. Special or advanced students will be assigned problems for investigation under the supervision of members of the staff.

BIOMETRY AND VITAL STATISTICS

Raymond Pearl, Ph. D., Professor.
Lowell J. Reed, Ph. D., Associate Professor.
William T. Howard, M. D., Lecturer.
John R. Miner, A. B., Associate.
Sylvia M. Parker, A. B., Instructor.
Chester E. Rutherford, Assistant.
Amy G. Phillips, Assistant.
Charmian Howell, S. B., Assistant.
Agnes L. Bacon, A. B., Volunteer Assistant.
Alice Raymond, S. B., Fellow.*

The work of this department is intended to meet the needs of two classes of students: (a) Those training for work in public health; (b) those intending to specialize in statistical work either as teachers, investigators, or administrators.

I. Introduction to Vital Statistics. Dr. Pearl, Dr. Reed, Mr. Miner, Miss Parker, and Mrs. Howell. Three days per week during the first trimester. The course is designed to acquaint the student, on the one hand, with modern methods of collecting, tabulating, adjusting, and drawing sound conclusions from statistical data regarding human life, and, on the other hand, with the chief results which have accrued from the study of vital statistics in the past. The course involves a considerable amount of laboratory work, in which the student will gain first-hand familiarity with statistical data and methods in the fields of hygiene and public health. Special emphasis is placed upon modern biometric and graphic methods.

* Resigned, March 1, 1921.

II. Advanced Statistical Theory. Dr. Reed and Mr. Miner. Given in second trimester. This course is intended to meet the needs of those students who desire to continue the study of statistical theory. In the first part of the course, the various methods of graduating statistical data will be developed, special emphasis being placed on the methods of curve fitting. The second part of the course will be devoted to a consideration of the subject of correlation. The laboratory work of the course will include problems in life table construction, in the fitting of frequency curves and in simple and multiple correlation. The course is open only to those who have previously taken Course I in Statistics.

III. The Statistical Measurement of the Effectiveness of Public Health Activities. Dr. Howard. This course, open only to those who have had course I in vital statistics, aims to give, by means of lectures and conferences, a historical and critical examination of the actual results of various public health activities. The most suitable statistical methods for the critical measurement of the effectiveness of such activities will be developed.

IV. Investigations in Biometry and Vital Statistics. Dr. Pearl. In the work of the department special attention will be devoted to research. Properly qualified workers, who may be either candidates for the degree of Doctor of Science in Hygiene or special students, may be taken into the laboratory and either assigned problems in connection with the general co-ordinated plan of investigation being pursued in the department, or aided and directed in the development of their own problems. The general lines along which research may profitably be undertaken in the department are: higher statistical theory, analytical studies on human vital statistics, genetic and other biological factors influencing the duration of life, the study by modern statistical methods of epidemiological problems.

Additional Opportunities. There are certain opportunities for advanced students, resulting from outside connec-

tions of the department, apart from the courses offered which require special mention.

I. Investigations on Tuberculosis. By means of funds furnished from several external sources there is in progress in the department an intensive investigation of the genetic and environmental factors concerned in the etiology and epidemiology of tuberculosis. The investigation is being prosecuted by the method of intensive field study and pedigree analysis, along the lines which have been so fruitful in the general field of eugenics.

This investigation affords to properly qualified students an opportunity for practical experience and training in eugenic field work, and the analysis of the data from such work.

II. Central Statistical Bureau of the Baltimore Alliance. In January 1920 the Baltimore Alliance, a federation of fourteen social or charitable agencies in the City of Baltimore, organized a new department of potentially far-reaching importance. It is known as the Central Statistical Bureau, and forms an integral part of the Alliance. The functions of this Bureau are (1) to supervise, standardize, and control the permanent statistical records collected by each of the allied agencies; (2) to serve as the final repository of all case and statistical records; (3) on the basis of the critically controlled basic statistical records to carry on scientific investigations of those broad social problems toward the ultimate permanent solution of which the activities of the Alliance are directed.

Dr. Pearl has been appointed Director of the Central Statistical Bureau, and Miss Magdalen H. Burger, Chief Statistician. The Bureau is housed with the department of biometry and vital statistics of the School of Hygiene and Public Health at 625 St. Paul Street, Baltimore.

It is to be expected that with the passage of time there will accumulate in this Bureau a set of records which will offer unique opportunities to graduate students and others wishing to undertake fundamental investigations into the causes of poverty, disease, and other social problems.

III. Hospital Statistics. Students interested in the statistical aspects of the problems of clinical medicine, surgery, and pathology will be afforded an opportunity of undertaking research upon these problems under the direction of Dr. Pearl. All of the extensive collection of case histories in the archives of the Hospital is available for such investigations.

PUBLIC HEALTH ADMINISTRATION

Sir Arthur Newsholme, M. D., Resident Lecturer.*

The work of the department comprises: 1. Lectures. 2. Conferences. 3. Demonstrations.

In the lectures are included:

A sketch of the history of public health administration and of its inter-relation with other branches of administration, and with the medical and nursing professions.

Method of registration of births, sickness and death.

Methods of procedure in remedying sanitary or housing defects.

Administrative aspect of public health laboratory work.

The prevention of the chief epidemic diseases.

Hospital administration.

The prevention and control of tuberculosis and of venereal diseases.

Food sanitation.

Maternity and child welfare work.

School hygiene.

Industrial hygiene.

Public health nursing.

Methods of preparing budgets.

Conferences are held twice weekly, at which the subjects included in the lecture course are discussed and illustrated by diagrams, models, etc.

* During the sessions of 1920-1921.

Demonstrations are given of practical work in general public health office administration and in methods of official action in regard to the control of infectious diseases, to food and milk, housing, nuisances, slaughter-houses, etc.; in the collection and use of vital statistics and use of the International Classification of causes of death.

Visits are made to public health laboratories, to infectious diseases hospitals, to tuberculosis hospitals, sanatoria, and clinics, to venereal clinics, to schools, centres for maternity and child welfare work, and to places illustrating details in rural and urban sanitation, and in industrial hygiene.

EPIDEMIOLOGY

W. H. Frost, M. D., Surgeon, U. S. Public Health Service, Resident Lecturer.
Milton V. Veldee, M. D., Associate.
W. Thurber Fales, S. B., C. P. H., Instructor.

The course is given in the second trimester, occupying eighteen hours a week.

It is designed to give students a view of the importance and possibilities of epidemiological study in extending the knowledge of infectious diseases, and to afford them training in methods, especially as applicable to such studies as may ordinarily be made in connection with administrative measures for the control of infectious diseases, utilizing the data ordinarily available to public health organizations.

The minimum requirements for admission to the course are a knowledge of the basic facts and principles of bacteriology, equivalent at least to what is given in the course in elementary bacteriology, together with sufficient knowledge of elementary statistical method. Subject to certain exceptions, students will be admitted to this course only after completing the required courses in bactriology and vital statistics.

The work consists of:

1. A course of lectures presenting the principles and methods of epidemiological investigation and illustrating

their application in special research and in such current study of infectious diseases as is a necessary part of the work of administrative health organization.

2. A course of selected collateral reading.

3. Class work, occupying approximately ten hours a week, in the analysis of crude epidemiological data, the presentation of conclusions and the planning of investigations.

4. Weekly conferences for the discussion of selected topics in connection with lectures, class work and collateral reading.

5. Demonstrations, arranged through the courtesy of the Baltimore City and Maryland State Departments of Health, of the work done by these organizations and associated agencies in the study and control of infectious diseases. These demonstrations are supplemented by individual field work on the part of students in the collection of epidemiological data from original sources, taking advantage of such opportunities for field work as may be presented at the time.

6. The preparation, by each student, of a brief thesis on an assigned subject in epidemiology.

SCHEDULES OF COURSES FOR THE SESSION OF 1921-1922

SCHEDULES OF COURSES

SCHEDULE FOR THE COURSE LEADING TO THE DEGREE OF DOCTOR OF PUBLIC HEALTH

The schedule arranged for candidates for the degree of Doctor of Public Health consists of a series of trimestral laboratory courses together with certain general and special lecture courses. The laboratory courses extend in most cases from 9 a. m. to 4 p. m. (Saturday, 9 a. m. to 1 p. m.), and will include appropriate lectures or conferences. Each student will be expected to complete satisfactorily twelve trimestral laboratory courses, taking two such courses in each trimester, so that under ordinary conditions two years will be required to complete the work for the degree. It is understood that candidates for the degree may enter upon their work at the beginning of any trimester. In making up his twelve required laboratory courses each student will be given an opportunity to elect two or three of these courses in one department. The additional elected courses will be of a special or advanced character. In addition each student will be expected to attend the afternoon lectures during one year, and will be requested to show evidence of satisfactory field or laboratory work during one summer in some approved public health service.

Students taking the combined course in medicine and public health will be required to absolve nine of the trimestral laboratory courses. The following provisional announcement is made of the arrangement of courses for the session of 1921-1922:

First or Fourth Trimester (October 4 to December 23)

Hours: 9 to 4; Saturdays, 9 to 1.

Laboratory Courses

Monday, Wednesday, Friday	*Tuesday, Thursday, Saturday*
Bacteriology I.	Protozoology.
*Sanitary Engineering.	Statistics I.
Physiological Hygiene I.	Immunology III.

Bacteriology III (Three days weekly).

Afternoon Lectures

De Lamar Lectures.....Monday, 5 p. m., as announced.
Public Health Administration....Tuesday, 4 p. m.
Selected Topics in Hygiene.....Wednesday, 4 p. m., Dr. Welch.
Public Health Administration....Friday, 4 p. m.
(Conference)

Second or Fifth Trimester (January 3 to March 18)

Hours: 9 to 4; Saturdays, 9 to 1.

Laboratory Courses

Monday, Wednesday, Friday	*Tuesday, Thursday, Saturday*
Bacteriology II.	Epidemiology.
Helminthology.	Immunology I.
Statistics II.	Chemistry II.

Bacteriology III (Three days weekly).

Afternoon Lectures

De Lamar Lectures.....Monday, 5 p. m., as announced.
Public Health Administration....Tuesday, 4 p. m.
Selected Topics in Hygiene.....Wednesday, 4 p. m., Dr. Welch.
Public Health Administration....Friday, 4 p. m.
(Conference)

---

* Sanitary Engineering—Monday, 11.30 to 4; Wednesday, 8.30 to 12.30 Friday, 8.30 to 9.30.

THIRD OR SIXTH TRIMESTER (MARCH 20 TO JUNE 10)

Hours: 9 to 4; Saturdays, 9 to 1.

Laboratory Courses

Monday, Wednesday, Friday	*Tuesday, Thursday, Saturday*
Parasitology.	Immunology II.
Physiological Hygiene II.	Entomology.
Statistics III.	Chemistry I.

Bacteriology III (Three days weekly).

Afternoon Lectures

De Lamar Lectures.....Monday, 5 p. m., as announced.
Metabolism and Diet.....Monday, 4 p. m., Dr. McCollum.
Metabolism and Diet.....Tuesday, 4 p. m., Dr. McCollum.
Sanitary Law.....Wednesday, 4 p. m., Dr. Goodnow.
Personal Hygiene.....Thursday, 4 p. m., Dr. Howell.
Mental Hygiene (Demonstration).Thursday, 4.30 p. m., Dr. Adolf Meyer.
Metabolism and Diet.....Friday, 4 p. m., Dr. McCollum.
Mental Hygiene (Conference).....Saturday, 2.30 p. m., Dr. Richards.

SCHEDULE FOR THE COURSE LEADING TO THE DEGREE OF BACHELOR OF SCIENCE

First Trimester (October 4 to December 23, 1921-1922)

Hours: 9 to 4; Saturdays, 9 to 1.

Laboratory Courses:

Bacteriology I.....Monday, Wednesday, Friday.
Anatomy .....Tuesday, Thursday.

Afternoon Lectures:

De Lamar Lectures.....Monday, 5 p. m., as announced.

Second Trimester (January 3 to March 18, 1921-1922)

Hours: 9 to 4; Saturdays, 9 to 1.

Laboratory Courses:

Physiology .....Monday, Wednesday, Friday.
Histology .....Tuesday, Thursday.

Afternoon Lectures:

De Lamar Lectures.....Monday, 5 p. m., as announced.

Third Trimester (March 20 to June 10, 1921-1922)

Hours: 9 to 4; Saturdays, 9 to 1.

Laboratory Courses:

Physiological Hygiene II.....Monday, Wednesday, Friday.
Chemistry .....Tuesday, Thursday, Saturday.

Afternoon Lectures:

De Lamar Lectures.....Monday, 5 p. m., as announced.
Personal Hygiene.....Thursday, 4 p. m. Dr. Howell.

Fourth Trimester (1922-1923)

Hours: 9 to 4; Saturdays, 9 to 1.

Laboratory Courses:

Sanitary Engineering.....Monday, 11.30 to 4. Wednesday, 8.30 to 12.30. Friday, 8.30 to 9.30.
Physiological Hygiene I
or Statistics I..... Tuesday, Thursday, Saturday.

Afternoon Lectures:

De Lamar Lectures.....Monday, 5 p. m., as announced.
Public Health Administration.....Tuesday, 4 p. m.
Selected Topics in Hygiene.....Wednesday, 4 p. m., Dr. Welch.

Fifth Trimester (1922-1923)

Hours: 9 to 4; Saturdays, 9 to 1.

Laboratory Courses:

Bacteriology II.....Monday, Wednesday, Friday.
Immunology I or Epidemiology.....Tuesday, Thursday, Saturday.

Afternoon Lectures:

De Lamar Lectures.....Monday, 5 p. m., as announced.
Public Health Administration.....Tuesday, 4 p. m.
Selected Topics in Hygiene.....Wednesday, 4 p. m., Dr. Welch.

Sixth Trimester (1922-1923)

Hours: 9 to 4; Saturdays, 9 to 1.

Laboratory Courses:

Parasitology.....Monday, Wednesday, Friday.
Elementary Pathology.....Tuesday, Thursday.

Afternoon Lectures:

De Lamar Lectures.....Monday, 5 p. m., as announced.
Metabolism and Diet.....Monday, 4 p. m., Dr. McCollum.
Metabolism and Diet.....Tuesday, 4 p. m., Dr. McCollum.
Sanitary Law.....Wednesday, 4 p. m., Dr. Goodnow.
Metabolism and Diet.....Friday, 4 p. m., Dr. McCollum.

SCHEDULE FOR THE COURSE LEADING TO THE CERTIFICATE IN PUBLIC HEALTH

First Trimester (October 4 to December 23)

Hours: 9 to 4; Saturdays, 9 to 1

Laboratory Courses

*Sanitary Engineering..... Monday, Wednesday, Friday.
Statistics I..... Tuesday, Thursday, Saturday.

Afternoon Lectures

De Lamar Lectures..... Monday, 5 p. m., as announced.
Public Health Administration..... Tuesday, 4 p. m.
Selected Topics in Hygiene..... Wednesday, 4 p. m., Dr. Welch.
Public Health Administration..... Friday, 4 p. m.
(Conference)

Second Trimester (January 3 to March 18)

Hours: 9 to 4; Saturdays, 9 to 1.

Laboratory Courses

Bacteriology II..... Monday, Wednesday, Friday.
Epidemiology ..... Tuesday, Thursday, Saturday.

Afternoon Lectures

De Lamar Lectures..... Monday, 5 p. m., as announced.
Public Health Administration..... Tuesday, 4 p. m.
Selected Topics in Hygiene..... Wednesday, 4 p. m., Dr. Welch.
Public Health Administration..... Friday, 4 p. m.
(Conference)

Third Trimester (March 20 to June 10)

Hours: 9 to 4; Saturdays, 9 to 1.

Laboratory Courses

Parasitology or Physiological
Hygiene II or Statistics III..... Monday, Wednesday, Friday.
Immunology II, or Entomology
or Chemistry I..... Tuesday, Thursday, Saturday.

---

*Sanitary Engineering—Monday, 11.30 to 4; Wednesday, 8.30 to 12.30; Friday, 8.30 to 9.30.

Afternoon Lectures

De Lamar Lectures	Monday, 5 p. m., as announced.
Metabolism and Diet	Monday, 4 p. m., Dr. McCollum.
Metabolism and Diet	Tuesday, 4 p. m., Dr. McCollum.
Sanitary Law	Wednesday, 4 p. m., Dr. Goodnow.
Personal Hygiene	Thursday, 4 p. m., Dr. Howell.
Mental Hygiene (Demonstration)	Thursday, 4.30 p. m., Dr. A. Meyer.
Metabolism and Diet	Friday, 4 p. m., Dr. McCollum.
Mental Hygiene (Conference)	Saturday, 2.30 p. m., Dr. Richards.

INTENSIVE COURSE FOR PUBLIC HEALTH OFFICERS

The daily schedule arranged for this course during the session of 1920-1921, November 8 to December 18, comprised the following exercises:

Laboratory Dmonstrations 9 a. m. to 1 p. m.	*Exercises*	
Bacteriology.	9	Drs. Ford, Robinson, Meader, Lange, Salter.
Medical Zoology.	7	Drs. Hegner, Cort, Taliaferro, Root, Simon.
Vital Statistics.	5	Drs. Pearl, Reed, Miner, Parker.
Physiology (Dust - Illumination-Fatigue).	3	Drs. Spaeth, Clark, Meyer.
Food and Nutrition.	3	Drs. McCollum and Shohl.
Sanitary Engineering.	3	Professor Gregory.
Immunology.	3	Dr. Havens.
Afternoon Demonstrations 2 to 5 p. m.		
Epidemiology.	5	Dr. Frost.
City Administration.	1	Dr. Jones.
State Administration.	1	Dr. Fulton.
Municipal Tuberculosis Work.	1	Dr. Jones.
City Methods of Control of Infectious Diseases.	1	Dr. Jones and Dr. Hogan.
Maternity and Pre-Natal Clinic.	1	Dr. Whitridge Williams.
Venereal Diseases.	1	Dr. Rytina.
Child Welfare Work.	1	Dr. Mary Sherwood.
Water Plants.	1	Professor Gregory.
Milk Inspection.	1	Dr. Shohl.

Afternoon Conferences

2 to 4 p. m.

Municipal, County and State Public Health Administration	Chairman, Dr. J. S. Fulton.
Hospital Administration	Chairman, Dr. Winford Smith.
Control of Tuberculosis	Chairman, Sir Arthur Newsholme.
Control of Acute Infectious Diseases	Chairman, Dr. W. H. Frost.
Control of School Medical Inspection	Chairman, President Goodnow.
Control of Venereal Diseases	Chairman, Dr. W. H. Howell.
Feeble Minded Children	Chairman, Dr. W. B. Cornell.
Intestinal Diseases	Chairman, Dr. L. L. Lumsden.
Sanitary Inspection and Housing	Chairman, Prof. J. H. Gregory.
Maternity and Child Welfare Work	Chairman, Dr. J. H. M. Knox.
Voluntary Public Health Agencies	Chairman, Dr Livingston Farrand.
Publicity Work	Chairman, Dr. C. Hampson Jones.
Preparation of Budgets	Chairman, Dr. A. J. McLaughlin.

Afternoon Lectures

4 to 5 p. m.

Dr. Welch, Sir Arthur Newsholme, President Goodnow, Dr. Howell, Dr. McCollum and Dr. C. G. Bull.

INDEX

INDEX OF NAMES

	PAGE
Abadia, G.	19
Abriol, R.	15
Ackert, J. E.	14
Andrews, G. D.	21
Armstrong, D. B.	34
Atwater, R. M.	14, 15
Augustine, D. L.	13, 16, 48, 49
Bacon, A. L.	13, 54
Baetjer, A. M.	19
Bailey, C. E.	16
Bailey, G. H.	14, 15
Baker, N. D.	6
Barlow, C. H.	19
Barnes, R. E.	19
Bass, C. C.	36
Becker, E. R.	13, 16, 48, 50
Boeck, W. C.	14
Bond, E. M.	21
Bowen, J. S.	21
Boyce, W. G.	6
Britten, R. H.	19
Brown, A. D.	21
Brown, L.	36
Brown, O. G.	15
Bull, C. G.	9, 24, 44, 45, 70
Burger, M. H.	56
Busby, F. H.	19
Campbell, J. M.	21
Caulfield, E. J.	12, 51, 53
Chapin, C. V.	34
Clark, J. H.	11, 51, 52, 69
Collinson, J.	15
Connelly, K. E.	16
Cornell, W. B.	70
Cort, W. W.	9, 48, 49, 69
Cox, C. R.	18
Cox, J. W.	21
Cromwell, H.	16
Cumming, H. S.	36
Darrah, J. E.	14, 16, 46
Davis, W. H.	36
DeLamar, J. R.	34, 37, 38
Dixon, F. W.	17
Doull, J. A.	15
Dunham, G. C.	15
Durham, M. L.	24
Edsall, D. L.	36
Ellicott, V. L.	15
Elvers, C. F.	19
Emerson, C. A.	21
Emerson, H.	34
Enciso, E.	19
Fales, W. T.	12, 17, 58
Farrand, L.	35, 70
Fonseca, O. O. R. d.	19
Ford, W. W.	8, 24, 43, 44, 69
Fort, S. J.	21
Foster, R.	19
France, M. vT.	18
Frobisher, M., Jr.	18
Frost, W. H.	8, 24, 58, 69, 70
Fulton, J. S.	9, 69, 70
Gaerlan, R. Padua	16
Garzon-Cossa, G.	19
Glace, I. M.	21
Glenn, J., Jr.	6
Goodnow, F. J.	7, 65, 67, 69, 70
Goodwin, W. A.	18
Gover, M.	17
Grant, J. B.	15
Gregory, J. H.	8, 24, 46, 69, 70
Griswold, B. H., Jr.	6
Gunther, W. A.	21
Hampton, G. G.	19
Harlan, H. D.	6
Harper, E. C.	21
Harrison, S. M.	36
Havens, L. C.	12, 44, 45, 69
Hec, V.	19
Hegner, R. W.	9, 24, 48, 49, 69
Heiser, V. G.	34
Hoad, W. C.	35
Hogan, J. F.	69
Hogue, M. J.	14, 48
Howard, M. C.	19
Howard, W. T.	9, 54, 55
Howell, C.	13, 54
Howell, W. H.	7, 24, 28, 51, 53, 65, 66, 69, 70
Hyde, R. R.	11, 44
Hydrick, J. L.	21
Ilsley, M. L.	15
Jones, C. H.	10, 69, 70
Keisker, L. B.	19

	PAGE
Keister, W. S.	21
Keyser, R. B.	6
Kibbey, C. H.	21
King, M. S.	13, 46
Kinney, E. M.	13, 46
Klan, Z. F.	19
Knox, J. H. M.	70
Koch, M.	11, 46
Koch, M. L.	18
Lange, L. B.	12, 43, 69
Leach, C. N.	14, 18
Levering, E.	6
Levine, V. E.	17
Libby, W. E.	19
Lisk, H.	17
Lim, C. E.	15
Lumsden, L. L.	70
McCollum, E. V., 7, 24, 37, 46, 47, 65, 67, 69,	70
McKay, A. L.	20
McLaughlin, A. J.	70
Marburg, T.	6
Marcus, M. A.	20
Mark, C. B.	22
Marlette, G. C.	22
Maxcy, K. F.	14, 15
Meader, P. D.	12, 43
Meehan, J. W.	15
Meyer, A.	65, 69
Meyer, A. L.	11, 51, 53, 69
Miller, W. C.	22
Miner, J. R.	10, 17, 54, 55, 69
Meses, H. E.	22
Muench, H., Jr.	20
Murphree, C. L.	22
Nauss, R. W.	16
Newman, G.	18
Newsholme, A.	8, 24, 35, 57, 70
Nicholls, E. E.	17
Niles, H. E.	20
Norris, E.	24
Nunez, S.	22
Oldt, F.	16
Oppenheimer, E. H.	17
Outland, C. L.	22
Padua-Gaerlan, R.	16
Parker, P. G.	22
Parker, S. L.	12, 54, 69
Pearl, R.	8, 24, 54, 55, 56, 57, 69
Pedley, F.	16
Pelc, H. J.	20
Pfeiffer, J. A. F.	18
Phillips, A. G.	13, 54
Pitlik, S.	17
Pleasants, J. H.	6
Pour, B.	20
Powell, H. M.	17
Pritchett, I. W.	14, 17, 44, 45
Randall, B.	6
Rankin, W. S.	36
Raymond, A.	14, 17, 54
Reed, B. L.	20
Reed, L. J.	9, 24, 54, 55, 69
Reinhard, F. O.	18
Richards, E. L.	65, 69
Riley, R. H.	20
Rivas-Vides, R.	18
Robinson, G. H.	10, 24, 43, 69
Robinson, T. J.	22
Root, F. M.	11, 48, 49, 50, 69
Rose, W.	28
Rutherford, C. E.	13, 54
Rytina, A. G.	69
Salter, R. C.	13, 43, 44, 69
Schneider, E. C.	35
Segovia, J.	20
Shamburger, A. C.	18
Sheldon, C. W.	22
Shelling, D. H.	18
Sherwood, M.	69
Shohl, A. T.	12, 46, 47, 69
Simmonds, N.	11, 46
Simon, C. E.	10, 38, 48, 49, 69
Smith, H. W.	14, 17, 51
Smith, O. C.	18
Smith, W.	70
Snow, W. F.	10
South, L. H.	22
Spaeth, R. A.	10, 24, 51, 52, 69
Stiles, C. W.	35
Stoddard, J. M.	20
Stoll, N. R.	14, 17
Stone, W. C.	22
Strong, R. P.	35
Sutton, A. C.	20
Swenarton, J. C.	17
Szymanski, J. J.	14, 16
Taliaferro, W. H.	11, 48, 49, 69
Tayntor, L. O.	22
Thies, E. S.	24
Thomas, N. J.	20
Truitt, C. R.	22
Turriago, L. F.	16
Van Winkle, C. C.	16

	PAGE
Veldee, M. V.	12, 58
Vides, R. Rivas	18
Warren, A. J	20
Welcch, W. H.,	7, 24, 27, 38, 64, 66, 67, 68, 70
White, M., Jr	6
Whitmore, E. R	16
Whittle, W. A	20
Willard, D	6
Williams, J. W	69
Williams, G. H	16
Wilson, D. P	20
Wood, F. W	6
Woodward, L. K	22
Wu, H. F	20
Yokogawa, S	14

INDEX

	PAGE
Admission, Requirements for..... 27, 30, 31, 32,	33,
Advisory Board of the Faculty....	24
Applications, Committee on.....	24
Artist	24
Assistant Director.....7, 24,	28
Assistants	13
Associates	10
Associate Professors.....	8
Announcement of Courses, Departments of Instruction and,	
Bacteriology	43
Biometry and Vital Statistics,	54
Chemical Hygiene.....	46
Epidemioolgy	58
Immunology	44
Medical Zoology.....	48
Physiological Hygiene.....	51
Public Health Administration,	57
Sanitary Engineering.....	46
Special Students.....	33
Intensive, for Health Officers,	33
Bachelor of Science in Hygiene,	
Candidates for degree of...	18
Course leading to degree of,	31
Schedule for course.....	66
Bacteriology, Course in.....	43
Biometry and Vital Statistics,	
Course in.....	54
Board of Trustees.....	6
Advisory, of the Faculty.....	24
Calendar	5
Registration and.....	38
Candidates for degree of Doctor of	
Public Health.....	15
Doctor of Science in Hygiene,	16
Bachelor of Science in Hygiene	18
Certificate in Public Health.....	18
Certificate in Public Health, Course	
leading to.....	32
Chemical Hygiene, Course in.....	46
Committee, Executive.....	24
Library	24
On Applications.....	24
On Publications.....	24
Contents	3

	PAGE
Courses	
Doctor of Public Health.....	29
Doctor of Science in Hygiene,	30
Bachelor of Science in Hygiene	31
Certificate in Public Health..	32
Special Students.....	33
Intensive for Health Officers,	33
Schedule sof.....63, 66, 68,	69
Degrees, Candidates for	
Doctor of Public Health.....	15
Doctor of Science in Hygiene,	16
Bachelor of Science in Hygiene	18
De Lamar Lectures in Hygiene...	34
Departments of Instruction and Announcement of Courses,	
Bacteriology	43
Biometry and Vital Statistics,	54
Chemical Hygiene.....	46
Epidemiology	58
Immunology	44
Medical Zoology.....	48
Physiological Hygiene.....	51
Pubilc Health Administration,	57
Sanitary Engineering.....	46
Special Students.....	33
Intensive, for Health Officers,	33
Director 7, 24, 27, 37,	39
Assistant 7, 24,	28
Doctor of Public Health,	
Candidates for degree of.....	15
Course leading to degree of..	29
Schedule for course.....	63
Doctor of Science in Hygiene, Candidates for degree of.....	16
Course leading to degree of..	30
Epidemiology, Course in.....	58
Executive Committee.....	24
Faculty	7
Advisory Board of the.....	24
Fellows	14
By Courtesy.....	14
Fellowships	37
General Statement.....	27
Health Officers, Intensive Course for,	33
Immunology, Course in.....	44

	PAGE
Instruction and Announcement of Courses, Departments of,	
Bacteriology	43
Biometry and Vital Statistics,	54
Chemical Hygiene	46
Epidemiology	58
Immunology	44
Medical Zoology	48
Physiological Hygiene	51
Public Health Administration,	57
Sanitary Engineering	46
Special Students	33
Intensive, for Health Officers.	33
Instructors	11
Intensive Course for Public Health Officers	33
Lecturers	9
De Lamar	34
Lectures, De Lamar	34
School Hygiene	37
Library Committee	24
Librarian	24
Medical Zoology, Course in	48
Physiological Hygiene, Course in	51
Officers	24
President of the University....6, 7,	24
Professors	7
Associate	8
Public Health, Course leading to Certificate in,	32
Public Health Administration, Course in	57
Public Health Officers, Intensive Course for	33
Public Lectures	34
Publications	38
Committee on	24
Requirements for Admission	29, 30, 31, 32
Registration and Calendar	38
Rockefeller Foundation Scholars	14
Sanitary Engineering, Course in	46
Schedules of Courses,	
Doctor of Public Health	63
Bachelor of Science in Hygiene	66
Certificate in Public Health.	68
Intensive Course for Health Officers	69
Scholars, Rockefeller Foundation	14
Scholarships	37
School Hygiene, Course in	37
Secretary	24
Special Students, Courses for	33
List of	19
Statement, General	27
Statistics, Course in Biometry and Vital	54
Students, 1920-1921	15
Special	19
Intensive course	21
Summary of Students	23
Treasurer of the University	6
Trustees, Board of	6
Tuition	39
University, President of	6
Treasurer of	6
Trustees of	6
Zoology, Course in Medical	48

z hy
R/23

Series, 1922 Whole Number 337
No. 3

UNIVERSITY OF ILLINOIS LIBRARY
MAY 5 1922

THE

JOHNS HOPKINS

UNIVERSITY CIRCULAR

SCHOOL OF HYGIENE AND PUBLIC HEALTH

CATALOGUE AND ANNOUNCEMENT FOR 1922-1923

BALTIMORE, MARYLAND
PUBLISHED BY THE UNIVERSITY
ISSUED JANUARY, MARCH, APRIL, JUNE, JULY, OCTOBER, NOVEMBER

APRIL, 1922

Entered, October 21, 1903, at Baltimore, Md., as second-class matter, under Act of Congress of July 16, 1894

Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized on July 3, 1918

THE

JOHNS HOPKINS UNIVERSITY

SCHOOL OF HYGIENE AND PUBLIC HEALTH

CATALOGUE AND ANNOUNCEMENT
FOR 1922-1923

BALTIMORE
THE JOHNS HOPKINS PRESS
1922

CONTENTS

	PAGE
Calendar	5
Trustees of the Johns Hopkins University	6
Treasurer of the University	6
Faculty	7
Fellows	14
Rockefeller Foundation Fellows	15
International Health Board Fellows	15
Students	17
Summary	25
Advisory Board of the Faculty	26
Executive Committee	26
Committee on Applications	26
Committee on Publications	26
Library Committee	26
Other Officers	26
General Statement and Requirements for Admission:	
General Statement	29
Courses and Degrees:	
Doctor of Public Health	31
Doctor of Science in Hygiene	32
Certificate in Public Health	34
Bachelor of Science in Hygiene	34
Intensive Course for Public Health Officers	35
Intensive Course in Medical Zoology	36
Special Students	36
The De Lamar Lectures in Hygiene	37
Public Lectures	37
Course in General Hygiene	39
Scholarships	40
Fellowships	40
Publications	41
Registration and Calendar	41
Tuition	42
Departments of Instruction and Announcements of Courses:	
Bacteriology	45
Immunology	47
Sanitary Engineering	49
Chemical Hygiene	49
Medical Zoology	51
Physiological Hygiene	57
Biometry and Vital Statistics	59
Epidemiology	62
Public Health Administration	64
Schedules of Courses for the Season of 1922-1923:	
Doctor of Public Health	69
Certificate in Public Health	75
Bachelor of Science in Hygiene	76
Intensive Course for Public Health Officers	78
Degrees Conferred, 1919-22	81
Alphabetical Index of Names	85
Index	87

1922

JANUARY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	..	..	..	..
..	..	..	..	..	..	..

FEBRUARY

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	..	..	..	..
..	..	..	..	..	..	..

MARCH

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	..
..	..	..	..	..	..	..

APRIL

S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	..	..	..	..	..	..

MAY

S	M	T	W	T	F	S
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	..	..	..
..	..	..	..	..	..	..

JUNE

S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	..
..	..	..	..	..	..	..

JULY

S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	..	..	..	..	..

AUGUST

S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	..	..
..	..	..	..	..	..	..

SEPTEMBER

S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
..	..	..	..	..	..	..

OCTOBER

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	..	..	..	..
..	..	..	..	..	..	..

NOVEMBER

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	..	..
..	..	..	..	..	..	..

DECEMBER

S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	..	..	..	..	..	..

1923

JANUARY

S	M	T	W	T	F	S
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	..	..	..
..	..	..	..	..	..	..

FEBRUARY

S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	..	..	..
..	..	..	..	..	..	..

MARCH

S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31
..	..	..	..	..	..	..

APRIL

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	..	..	..	..	..
..	..	..	..	..	..	..

MAY

S	M	T	W	T	F	S
..	..	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	29	30	31	..	..
..	..	..	..	..	..	..

JUNE

S	M	T	W	T	F	S
..	..	..	..	..	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
..	..	..	..	..	..	..

JULY

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31	..	..	..	..
..	..	..	..	..	..	..

AUGUST

S	M	T	W	T	F	S
..	..	..	1	2	3	4
5	6	7	8	9	10	11
12	13	14	15	16	17	18
19	20	21	22	23	24	25
26	27	28	29	30	31	..
..	..	..	..	..	..	..

SEPTEMBER

S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	..	..	..	..	..	..

OCTOBER

S	M	T	W	T	F	S
..	1	2	3	4	5	6
7	8	9	10	11	12	13
14	15	16	17	18	19	20
21	22	23	24	25	26	27
28	29	30	31	..	..	..
..	..	..	..	..	..	..

NOVEMBER

S	M	T	W	T	F	S
..	..	..	..	1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	..
..	..	..	..	..	..	..

DECEMBER

S	M	T	W	T	F	S
..	..	..	..	..	..	1
2	3	4	5	6	7	8
9	10	11	12	13	14	15
16	17	18	19	20	21	22
23	24	25	26	27	28	29
30	31	..	..	..	..	..

CALENDAR, 1922-1923

1922

June 13, Tuesday—Conferring of degrees (4 p. m.).

October 3, Tuesday—Instruction begins. Fifth academic year.

November 30, Thursday—Thanksgiving Day (all classes suspended).

December 23, Saturday—Christmas recess begins (no classes).

1923

January 2, Tuesday—Instruction resumed.

February 22, Thursday—Commemoration Day. Public exercises at 11 a. m. (All classes suspended).

March 29, Thursday—Easter recess begins (no classes).

April 5, Thursday—Instruction resumed.

June 12, Tuesday—Conferring of degrees (4 p. m.).

October 2, Tuesday—Instruction begins. Sixth academic year.

BOARD OF TRUSTEES

R. Brent Keyser, *President*
Eugene Levering
Theodore Marburg
Blanchard Randall
Henry D. Harlan, *Secretary*
Miles White, Jr.
B. Howell Griswold, Jr.
John Glenn, Jr.
Frederick W. Wood
Daniel Willard
Newton D. Baker
J. Hall Pleasants
The President of the University, *ex officio*

W. Graham Boyce, *Treasurer*

FACULTY

FRANK JOHNSON GOODNOW, LL. D.

President of the University

A. B., Amherst College, 1879, and A. M., 1887; LL. B., Columbia University, 1882; LL. D., Amherst College, 1897, Columbia University, 1904, Harvard University, 1909, Brown University, 1914, Princeton University, 1917; Professor of Administrative Law, Columbia University, 1887-1914.

6 W. Madison St.

WILLIAM HENRY WELCH, M. D., LL. D.

Director and Head of the Department of Bacteriology and Immunology

A. B., Yale University, 1870; M. D., Columbia University (College of Physicians and Surgeons, N. Y.), 1875; M. D. (Hon.), University of Pennsylvania, 1894; LL. D., Western Reserve University, 1894, Yale University, 1896, Harvard University, 1900, University of Toronto, 1903, Columbia University, 1904, Jefferson Medical College, 1907, Princeton University, 1910, Washington University, 1915, and University of Chicago, 1916; Professor of Pathological Anatomy and General Pathology in the Bellevue Hospital Medical College, N. Y., 1879-1884; Pathologist to the Johns Hopkins Hospital and Baxley Professor of Pathology, 1884-1917; Dean of the Medical Faculty, 1889-1898; President of the National Academy of Sciences, 1913-1917; President of the Board of Directors of the Rockefeller Institute for Medical Research; President of the American Association for the Advancement of Science, 1906; President of the American Medical Association, 1910-1911; Member of the American Philosophical Society; Honorary Fellow, Royal Sanitary Institute, London.

807 St. Paul St.

WILLIAM HENRY HOWELL, Ph. D., M. D., Sc. D., LL. D.

Assistant Director and Professor of Physiology

A. B., Johns Hopkins University, 1881, Fellow, 1882-1884, and Ph. D., 1884; LL.D., Trinity College (Conn.), 1901; Sc. D., Yale University, 1911; M. D. (Hon.), University of Michigan, 1890, LL. D., 1912; LL. D., Washington University, 1915; Assistant, Associate and Associate Professor of Biology, Johns Hopkins University, 1884-1889; Lecturer and Professor of Physiology and Histology, University of Michigan, 1889-1892; Associate Professor of Physiology, Harvard University, 1892-1893; Member of the National Academy of Sciences and of the American Philosophical Society; Dean of the Medical Faculty, 1899-1911; Professor of Physiology, Medical School, 1893-1920.

232 W. Lanvale St.

ELMER VERNER McCOLLUM, Ph. D., Sc. D.

Professor of Bio-Chemistry

A. B., University of Kansas, 1903, and A. M., 1904; Loomis Fellow, Yale University, 1905-1906, and Ph. D., 1906; Sc. D., University of Cincinnati, 1920; Instructor, Assistant Professor, Associate Professor and Professor of Agricultural Chemistry, University of Wisconsin, 1907-1917; Cutter Lecturer on Hygiene and Preventive Medicine, Harvard University, 1917-1918; Member of the National Academy of Sciences; Associate Member Royal Academy of Medicine of Belgium; Associate Editor, *Journal of Biological Chemistry* and *Journal of Dental Research*.

Talbot Rd., Windsor Hills.

RAYMOND PEARL, PH. D., SC. D., LL. D.

Professor of Biometry and Vital Statistics

A. B., Dartmouth College, 1899; Ph. D., University of Michigan, 1902; Sc. D., Dartmouth College, 1919; LL. D., University of Maine, 1919; Instructor in Zoology, University of Michigan, 1902-1906; in the University of Pennsylvania, 1906-1907; Biologist of the Maine Agricultural Experiment Station, 1907-1917; Chief of the Statistical Division of the United States Food Administration, 1917-1919; Member of the National Academy of Sciences and of the American Philosophical Society; Fellow of the American Academy of Arts and Sciences; Knight of the Crown of Italy; Associate Editor of *Genetics* and of the *Journal of Experimental Zoology;* Chairman of the Editorial Board of the Proceedings of the National Academy of Sciences; Statistician of The Johns Hopkins Hospital.

401 Hawthorn Rd., Roland Park.

JOHN HERBERT GREGORY, S. B.

Professor of Civil and Sanitary Engineering

S. B., Massachusetts Institute of Technology, 1895, Hydraulic and Sanitary Engineer, 1895-1911, Consulting Sanitary Engineer, 1911—; Member American Society of Civil Engineers; Associate Professor of Civil Engineering, Johns Hopkins University, 1919-1920.

3925 Canterbury Rd., Guilford.

WADE HAMPTON FROST, M. D., SURGEON, U. S. P. H. S.*

Professor of Epidemiology and Head of the Departments of Epidemiology and Public Health Administration

A. B., University of Virginia, 1901, and M. D., 1903; Assistant Surgeon and Surgeon, United States Public Health Service, 1905—; Director, Bureau of Sanitary Service, American Red Cross, 1917; Resident Lecturer in Epidemiology, Johns Hopkins University, 1919-1921.

Tudor Hall Apartments.

ALLEN WEIR FREEMAN, M. D.,

Resident Lecturer in Public Health Administration

S. B., Richmond College, 1899; M. D., Johns Hopkins University, 1905; Assistant Commissioner of Health, Virginia, 1908-1915; Epidemiologist, U. S. Public Health Service, 1915-1917; Commissioner of Health of Ohio, 1917-1921.

Guilford Manor Apartments.

ASSOCIATE PROFESSORS

WILLIAM WEBBER FORD, M. D., D. P. H.

Associate Professor of Bacteriology

A. B., Adelbert College, 1893; M. D., Johns Hopkins University, 1898, Instructor, Associate, and Associate Professor of Bacteriology, 1904-1910, Associate Professor of Bacteriology and Hygiene, 1910-1917; D. P. H., McGill University, 1900, and Fellow in Pathology, 1899-1901; Resident House Officer, Johns Hopkins Hospital, 1898-1899; Fellow, Rockefeller Institute for Medical Research, 1901-1902; Institute for Infectious Diseases, Berlin, 1901-1902, and Johns Hopkins University, 1902-1903; Hygienic Institute, University of Vienna, 1912-1913; Lecturer on Hygiene and Epidemiology, Johns Hopkins University, 1917—.

Charles St. Av., Woodbrook.

---

* Detailed to the School of Hygiene and Public Health by the Surgeon-General of the United States Public Health Service.

CARROLL GIDEON BULL, M. D.

Associate Professor of Immunology

S. B., Peabody College, 1907; M. D., University of Nashville, 1909; Pathologist to Lincoln Memorial Hospital, 1910-1912; Assistant, Nelson Morris Institute for Medical Research, 1912-1913; Assistant and Associate in Pathology and Bacteriology, The Rockefeller Institute for Medical Research, 1913-1917.

Montgomery Road, Windsor Hills.

LOWELL JACOB REED, PH. D.

Associate Professor of Biometry and Vital Statistics

S. B. and S. M., University of Maine, 1907 and 1912, Ph. D., University of Pennsylvania, 1915; Assistant Professor of Mathematics, University of Maine, 1915-1917; Director of Bureau of Tabulation and Statistics, War Trade Board, Washington, 1917-1918; Associate in Biometry and Vital Statistics, Johns Hopkins University, 1918-1919.

3409 Duvall Av., Forest Park.

ROBERT WILLIAM HEGNER, PH. D.

Associate Professor of Protozoology

S. B. and S. M., University of Chicago, 1903 and 1904; Ph. D., University of Wisconsin, 1908; Instructor, University of Michigan, 1908-1910, and Assistant Professor, 1910-1917; Johnston Scholar, Johns Hopkins University, 1917-1918; Associate in Protozoology, 1918-1919.

218 Hawthorn Rd., Roland Park.

WILLIAM WALTER CORT, PH. D.

Associate Professor of Helminthology

A. B., Colorado College, 1909; A. M. and Ph. D., University of Illinois, 1911 and 1914; Professor of Biology, Macalester College, 1914-1916; Assistant Professor of Zoology, University of California, 1916-1919; Consulting Helminthologist, State Board of Health, California, 1918-1919; Associate in Helminthology, Johns Hopkins University, 1919-1920.

3608 Woodbine Av., West Forest Park.

LECTURERS

WILLIAM TRAVIS HOWARD, M. D.

Lecturer in Biometry and Vital Statistics

M. D., University of Maryland, 1889; Graduate Student, Johns Hopkins University, 1889-1894; University of Prague, 1895; University of Munich, 1906-1907 and 1911; Professor of Pathology, Western Reserve University; Pathologist to the Lakeside and City Hospitals, Cleveland, 1894-1914; Bacteriologist Cleveland Board of Health, 1902-1914; Assistant Commissioner of Health, Baltimore, 1915-1919.

835 University Parkway.

JOHN SAMUEL FULTON, M. D.

Lecturer in Public Health

A. B., St. John's College, 1876; M. D., University of Maryland, 1881; Secretary State Board of Health, 1898-1907; and since 1912; Professor of State Medicine, University of Maryland, 1900-1918; Secretary-General Fifth International Congress on Tuberculosis, 1908; Secretary-General Fifteenth International Congress on Hygiene and Demography, 1912; Fellow Royal Society of Physicians of Hungary; Lieut.-Col. M. R. C., U. S. Army, Retired.

2211 St. Paul St.

CHARLES HAMPSON JONES, M. D.

Lecturer in Public Health

M. B., C. M., University of Edinborough, 1883; M. D. (Hon.), College of Physicians and Surgeons, Baltimore, 1889; Commissioner of Health, Baltimore, 1898-1900; Assistant Commissioner, 1900-1915; Chief of Bureau of Communicable Diseases, State Department of Health, 1915; Commissioner of Health, Baltimore, 1919; Professor of Hygiene and Preventive Medicine, University of Maryland and College of Physicians and Surgeons.

2529 St. Paul St.

CHARLES EDMUND SIMON, M. D.

Lecturer in Medical Zoology

A. B., Johns Hopkins University, 1888; M. D., University of Maryland, 1890; Professor of Clinical Pathology, University of Maryland and College of Physicians and Surgeons, 1908-1920; Fellow by Courtesy, Johns Hopkins University, 1919-1920.

1734 Linden Av.

WILLIAM FREEMAN SNOW, M. D.

Lecturer in Venereal Diseases

A. B., A. M., and M. D., Stanford University, 1896-1897 and 1900; Instructor in Biology and Physiological Optics, Cooper Medical College, 1898-1900; Assistant Professor and Associate Professor of Hygiene, Stanford University, 1902-1906; Professor of Hygiene and Public Health, 1909-1920; State Health Commissioner of California, 1909-1913; General Director, American Social Hygiene Association, 1914—.

370 Seventh Ave., New York.

ASSOCIATES

GEORGE HENRY ROBINSON, PH. D.

Associate in Bacteriology

A. B., Bates College, 1911; A. M., Brown University, 1912, and Ph. D., 1914; Research Laboratory, H. K. Mulford Company, 1914-1918.

3017 Harlem Av.

REYNOLD ALBRECHT SPAETH, PH. D.

Associate in Physiology

S. B., Haverford College, 1909; A. M., Harvard University, 1910, and Ph. D., 1913; Sheldon Fellow, Physiological Institute, Kiel, 1913-1914; Instructor in Biology, Clark College, 1914-1915, and Yale University, 1915-1918; Technical Assistant in Pharmacology, Hygienic Laboratory, U. S. Public Health Service, 1918.

212 Longwood Rd., Roland Park.

JOHN RICE MINER, SC. D.

Associate in Biometry and Vital Statistics

A. B., University of Michigan, 1913; Sc. D. in Hygiene, Johns Hopkins University, 1922; Computer, Maine Agricultural Experiment Station, 1913-1917; Biometrician, Statitsical Division, U. S. Food Administration, 1917-1918.

Towson, Md.

ROSCOE RAYMOND HYDE, PH. D.

Associate in Immunology

A. B. and A. M., Indiana University, 1909; Ph. D., Columbia University, 1915; Assistant in Embryology, Indiana University, 1908-1909; Assistant Professor, Professor and Head of Department of Zoology and Physiology, Indiana State Normal School, 1909-1919; Lecturer in Genetics, Terre Haute Veterinary College, 1910-1918; Dyckman Fellow, Columbia University, 1912-1913; Fellow in Immunology, Johns Hopkins University, 1918-1919.

4101 Penhurst Av.

ARTHUR LOUIS MEYER, M. D.

Associate in Physiology

A. B., Beloit College, 1905; M. D., University of Pennsylvania, 1909; Harvard Medical School, 1912-1913; Oxford University and Cambridge University, 1913; Assistant, Russell Sage Institute of Pathology, 1914-1915; Assistant and Associate, Rockefeller Institute for Medical Research, 1915-1919.

1109 St. Paul St.

JANET HOWELL CLARK, PH. D.

Associate in Physiology

A. B., Bryn Mawr College, 1910; A. M., Johns Hopkins University, 1912, and Ph. D., 1913; Huff Fellow, Bryn Mawr College, 1913-1914, and instructor in Physics, 1914-1915; Sarah Berliner Fellow, 1915-1916; Instructor, Smith College, 1916-1917; Assistant in Pathology, Johns Hopkins University, 1917-1918; Instructor in Physiology, 1918-1919.

232 W. Lanvale St.

WILLIAM HAY TALIAFERRO, PH. D.

Associate in Protozoology

S. B., University of Virginia, 1915; Assistant in Biology, Johns Hopkins University, 1915-1917; Adam T. Bruce Fellow, 1917-1918; Ph. D., 1918; Johnston Scholar, 1919; Instructor in Protozoology, 1919-1920.

1824 Bolton St.

FRANCIS METCALF ROOT, PH. D.

Associate in Medical Entomology

A. B., Oberlin College, 1911, A. M., 1912; Graduate Student, Johns Hopkins University, 1912-1914, University Fellow, 1914-1915; Adam T. Bruce Fellow, 1915-1917, Ph. D., 1917; Teaching Fellow in Medical Entomology, 1919-1920.

2320 Callow Av.

NINA SIMMONDS, S. B.

Associate in Bio-Chemistry

S. B., University of Wisconsin, 1915, Assistant in Agricultural Chemistry, 1915-1917; Assistant and Instructor in Bio-Chemistry, Johns Hopkins University, 1917-1920.

511 N. Wolfe St.

LEON CLIVE HAVENS, M. D.

Associate in Immunology

A. B. and A. M., Colorado College, 1913 and 1914; M. D., Harvard University, 1918.

4008 Edmondson Av.

PERCY DAVOL MEADER, PH. D.

Associate in Bacteriology

Ph. B., Sc. M. and Ph. D., Brown University, 1914, 1916 and 1918; Assistant Bacteriologist, Providence Health Department, 1916-1918; Assistant and Instructor, Johns Hopkins University, 1918-1921.

813 N. Howard St.

SYLVIA LOUISE PARKER, A. B.

Associate in Biometry and Vital Statistics

A. B., Mount Holyoke College, 1916, and Laboratory Assistant in Zoology, 1916-1917; Assistant Biologist, Maine Agricultural Experiment Station, 1917-1918; Instructor, Johns Hopkins University, 1918-1921.

3409 Duvall Ave., Forest Park.

JAMES ANGUS DOULL, M. D., DR. P. H.

Associate in Epidemiology

A. B. and M. D. C. M., Dalhousie University, 1911 and 1914; D. P. H., University of Cambridge, 1919; Provincial Inspector of Health for Nova Scotia, 1919-1920; Dr. P. H., Johns Hopkins University, 1921.

3040 St. Paul St.

MARGARET BAXTER MACDONALD, PH. D.

Associate in Bio-Chemistry

A. B., Mount Holyoke College, 1898; Ph. D., Bryn Mawr College, 1902; Instructor, Assistant Professor and Associate Professor in Agricultural Chemistry, Pennsylvania State College, 1907-1917 and Professor in Food and Nutrition, 1917-1921.

42 W. Biddle St.

WYATT WILLIAM RANDALL, PH. D.

Associate in Bio-Chemistry

A. B., St. John's College (Md.) 1884; Ph. D., Johns Hopkins University, 1890; Assistant and Associate in Chemistry, 1890-1898; Chief, Bureau of Chemistry, Maryland State Department of Health, 1916—.

10 Rugby Rd.

RICHARD BAXTER NORMENT, JR., M. D.

Associate in Public Health Administration

M. D., University of Maryland, 1914; Deputy State Health Officer (Maryland), 1914-1917; Assistant City Health Officer, Louisville, Kentucky, 1917; Assistant Surgeon, U. S. Public Health Service, 1918; Acting City Health Officer, Louisville, Kentucky, 1918; Director, Washington County Public Health Unit, 1921—.

Hagerstown, Md.

INSTRUCTORS

LINDA BARTELS LANGE, M. D.

Instructor in Bacteriology

A. B., Bryn Mawr College, 1903; M. D., Johns Hopkins University, 1911; Interne, New York Infirmary for Women and Children, 1911-1912; Fellow in Pathology and Bacteriology, Rockefeller Institute for Medical Research, 1912-1914; Pathologist, Howard A. Kelly Hospital, Inc., 1914-1915; Instructor in Pathology, University of Wisconsin, 1915-1916; Assistant and Instructor in Medicine, Johns Hopkins University, 1916-1918; Fellow in Bacteriology, 1918-1919.

804 N. Broadway.

WILLIAM THURBER FALES, S. B., C. P. H.

Instructor in Epidemiology

S. B., Massachusetts Institute of Technology, 1917; C. P. H., School of Public Health of Harvard University and the Massachusetts Institute of Technology, 1920.

2938 Clifton Av.

IDA WILLIAMS PRITCHETT, A. B.

Instructor in Immunology

A. B., Bryn Mawr College, 1914; Technical Assistant, Rockefeller Institute for Medical Research, 1915-1917 and Fellow in Pathology and Bacteriology, 1917-1918; Assistant Johns Hopkins University, 1918-1919 and Fellow in Immunology, 1919-1921.

Homewood Apts.

HELENE CONNET WILSON, PH. D.

Instructor in Physiology

A. B., Goucher College, 1915; Ph. D., Johns Hopkins University, 1920; Sarah Berliner Fellow, 1920-1921.

304 W. Monument St.

RAYMOND CLEVELAND SALTER, Sc. D.

Instructor in Bacteriology

S. B., University of Wisconsin, 1915; S. M., Iowa State College, 1918; Fellow in Bacteriology, Johns Hopkins University, 1919-1920 and Sc. D. in Hygiene, 1920; Chief, Bureau of Bacteriology, Maryland State Department of Health, 1920—.

1923 Park Av.

SAMUEL REED DAMON, PH. D.

Instructor in Bacteriology

Ph. B., A. M. and Ph. D., Brown University, 1916, 1917 and 1921; Assistant Bacteriologist, Rhode Island State Board of Health, 1920-1921; Lecturer in Bacteriology, Clark University, 1921.

813 N. Howard St.

ASSISTANTS

CHESTER EARL RUTHERFORD

Assistant in Biometry and Vital Statistics

1524 Ellamont St.

AGNES LATIMER BACON, A. B.

Volunteer Assistant in Biometry and Vital Statistics

A. B., Wellesley College, 1897.

2316 N. Calvert St.

ETHEL MAY KINNEY, A. M.

Assistant in Bio-Chemistry

A. B. and A. M., University of Kansas, 1918 and 1920; Research Assistant, University of Wyoming, 1918-1919; Fellow, University of Kansas, 1919-1920.

914 E. Madison St.

DONALD LESLIE AUGUSTINE, S. B.

Assistant in Medical Zoology

S. B., Macalester College, 1918, and Adjunct Professor of Biology, 1919-1920.

Y. M. C. A.

ELERY RONALD BECKER, A. B.

Assistant in Medical Zoology

A. B., University of Colorado, 1920.

813 N. Howard St.

ABEL WOLMAN, B. S. E.

Assistant in Sanitary Engineering

A. B. and B. S. E., Johns Hopkins University, 1913 and 1915; Division Engineer, Maryland State Department of Health, 1918; *Editor, Journal American Water Works Association.*

1911 Eutaw Place.

JULIA ERNESTINE BECKER, S. B.

Assistant in Bio-Chemistry

S. B., Cornell University, 1918; U. S. Food Administration, 1918-1919.

4015 Brookline Av.

WILLIAM ALBERT HOFFMAN, S. B.

Assistant in Medical Zoology

S. B., Cornell University, 1917; Teaching Fellow, Iowa State College, 1917-1918; Assistant, U. S. Bureau of Entomology, 1918-1920; Assistant State Entomologist, New York, 1920-1921.

2118 Penrose Av.

MARY GOVER, A. M.

Assistant in Biometry and Vital Statistics

A. B., Goucher College, 1913; A. M., Johns Hopkins University, 1917.

307 E. 30th St.

CHONG EANG LIM, M. B., Dr. P. H.

Volunteer Assistant in Immunology

S. B. and M. B., Hong Kong University, 1916; D. T. M., Liverpool School of Tropical Medicine, January, 1921; Dr. P. H., Johns Hopkins University, 1921.

2518 Maryland Av.

FELLOWS BY COURTESY

Alfred James Lotka, Sc. D.

S. B., and Sc. D., Mason College, Birmingham University (England), 1901 and 1912; A. M., Cornell University, 1909.

625 St. Paul St.

Samuel Taylor Darling, M. D.

M. D., College of Physicians and Surgeons (Balt.), 1903; Professor of Hygiene and Director of Hygienic Laboratories, Faculdade de Medicina e Cirurgia, São Paulo, Brazil, 1917—.

1109 St. Paul St.

FELLOWS

LEMMIE ROSCOE CLEVELAND. Union, Miss. 220 *W. Monument St.*
S. B., University of Mississippi, 1917. *Protozoology.*

HOBART WILLIAM CROMWELL. Center Point, Ind. 1922 *Madison Av.*
A. B., Indiana State Normal School, 1917. *Immunology.*

FRANK LOUIS KLEEBERGER. Berkeley, Cal. *Y. M. C. A.*
S. B. and A. M., University of California, 1908 and 1915. *Physiology.*

HENRIETTA LISK. Fort McCoy, Fla. 1610 *Bolton St.*
S. B. and S. M., Florida State College, 1907 and 1909; A. M., Columbia University, 1917. *Bacteriology.*

SAMUEL PITLIK. Baltimore, Md. 1818 *E. Baltimore St.*
A. B., Clark College, 1917; A. M., University of Chicago, 1918. *Statistics.*

BRUCE DODSON REYNOLDS. Long Island, Va. 813 *N. Howard St.*
S. B., University of Virginia, 1920. *Protozoology.*

ROCKEFELLER FOUNDATION FELLOWS

JOSEPH ALBERT BAUDOUIN. Montreal, Canada.
M. D. and D. P. H., Laval University, 1900 and 1912.

ADOLPH SYLVESTER RUMREICH. Pisek, N. D. 2237 *Mondawmin Av.*
A. B., University of North Dakota, 1917; M. D., Washington University, 1920.

NORMAN RUDOLPH STOLL. Detroit, Mich. 3709 *Yosemite Av.*
S. B., Mount Union College, 1915; S. M., University of Michigan, 1918.

INTERNATIONAL HEALTH BOARD FELLOWS

ANTONIO LUIZ DE BARROS BARRETO. Rio Janeiro, Brazil.
B. Sc. e Lett., Gymnasio of Pernambuco, 1910; Certificate in Microbiology and Medical Zoology, Instituto Oswaldo Cruz, Rio Janeiro, 1914; M. D., Faculdade de Medicina, Rio Janeiro, 1917.
915 *N. Charles St.*

ANDRÉS CASTRO. San Jose, Costa Rica. 1214 *Madison Av.*
M. D. University of Maryland, 1921.

JOSEPH CELEREK. Lublin, Poland.
M. D., University of Krakow, Poland, 1913; Chief, State Epidemiological Institute, Ministry of Public Health, Lublin.

JAROSLAV J. DRBOHLAV. Ostrava, Czechoslovakia. 1010 *Madison Av.*
M. D., University of Prague, 1917; Director, Bacteriological Laboratory, Ostrava.

ENRIQUE ENCISO RUIZ. Bogota, Colombia. 1402 *Eutaw Place.*
B. Ph. e Lett., Colegio Mayor del Rosario, 1911; M. D., Faculdade de Medicina, Bogota, 1919.

ARMINIO FRAGA. Rio Janeiro, Brazil.
M. D., Bahia Medical School, 1917.

LUIS GAITAN. Guatemala, C. A.
M. D., Guatemala University, 1900; Member of Commission against Yellow Fever; Inspector of Hygiene in the South Zone of Guatemala.

JOSE GUERRERO. Leon, Nicaragua. 3327 *Alto Av.*
B. Sc. e Lett., National Institute of Occidente, 1912; M. D., University of Michigan, 1919.

VILEM HONS. Padoli by Prague, Czechoslovakia. 2332 *Guilford Av.*
M. D., University of Prague, 1915.

CHARLES ROBERT LARDE. Salvador, C. A. 2016 *Madison Av.*
B. Sc. e Lett., National Institute, Salvador, 1913; M. D., National University, Salvador, 1921.

THOMAS JOHN LE BLANC. Cheboygan, Mich. 312 *W. Monument St.*
A. B. and M. S. P. H., University of Michigan, 1917 and 1920.

JARKA MASEK. Nova Paka, Bohemia.
M. D., University of Prague, 1913.

FAUSTO ROBLETO. Granada, Nicaragua. 746 *Reservoir St.*
M. D., Universidad Angelopolitana, Mexico, 1915.

OTTO SCHUBERT. Prague, Czechoslovakia. 1009 *Madison Av.*
M. D., German University of Prague, 1919; Instructor, German University of Prague.

OTOKAR SLANINA. Brno, Moravia. *St. Paul and 25th Sts.*
M. D., University of Prague, 1909.

JAMES SHIRLEY SWEENEY. Gainesville, Texas. 35 *Talbot Rd.*
A. B. and A. M., Texas Christian University, 1917 and 1918; M. D., Vanderbilt University, 1921.

KAREL URBANEK. Prague, Czechoslovakia.
M. D., Charles University of Prague, 1911; Official, Ministry of Health, Prague.

CZESLAW WROCZYNSKI. Biala, Poland. *St. Paul and 25th Sts.*
M. D., University of Saratow, 1915.

STUDENTS, 1921-1922

CANDIDATES FOR THE DEGREE OF DOCTOR OF PUBLIC HEALTH

RUFINO ABRIOL. Manila, P. I.

M. D., University of Illinois, 1913; D. T. M., University of the Philippines, 1916; C. P. H., Johns Hopkins University, 1921.

ANTONIO LUIZ DE BARROS BARRETO. Rio Janeiro, Brazil.

B. Sc. e Lett., Gymnasio of Pernambuco, 1910; Certificate in Microbiology and Medical Zoology, Instituto Oswaldo Cruz, Rio Janeiro, 1914; M. D., Faculdade de Medicina, Rio Janeiro, 1917.

915 *N. Charles St.*

JOHN COLLINSON. Baltimore. 16 *W. Saratoga St.*

A. B., St. John's College, 1907; M. D., Johns Hopkins University, 1911.

FRANK EDWARD COUGHLIN. Luzerne, Pa. 825 *Hamilton Terr.*

S. B., Lafayette College, 1920; M. D., University of Michigan, 1921.

ARCHIBALD SWEETLAND DEAN. Woodfords, Me. 520 *N. Broadway.*

S. B., Bowdoin College, 1918; Fourth Year Medical Student, Johns Hopkins University.

CARL RUPP DOERING. Fort Worth, Tex. 35 *Talbot Rd.*

A. B., Texas Christian University, 1921; M. D., Baylor Medical College, 1921.

ENRIQUE ENCISO RUIZ. Bogota, Colombia. 1402 *Eutaw Place.*

B. Ph. e Lett., Colegio Mayor del Rosario, 1911; M. D., Faculdade de Medicina, Bogota, 1919.

MORRILL LEONARD ILSLEY. Washington, D. C. 2227 *Eutaw Place.*

A. B., Colby College, 1917; M. D., Johns Hopkins University, 1921.

ARTHUR D. KNOTT. Salt Lake City, Utah. 101 *E. Monument St.*

A. B., Bethel College, 1896; M. D., Vanderbilt University, 1900.

CHARLES ROBERT LARDE. Salvador, C. A. 2016 *Madison Av.*

B. Sc. e Lett., National Institute, Salvador, 1913; M. D., National University, Salvador, 1921.

WILLIAM CURRY MARTIN. Lexington, Ky. *Sydenham Hospital.*

A. B., University of Kentucky, 1916; M. D., Johns Hopkins University, 1920.

JOHN WILLIAM MEEHAN. York, Neb.

A. B. and A. M., St. Mary's College, 1904 and 1906; M. D., Creighton University, 1908; Major, Medical Corps, U. S. A.

HALERM PROMMAS. Tark Town, Siam. 1227 *Madison Av.*

M. D., Chulalongkorn University, 1918.

ROBERT HICKMAN RILEY. Catonsville. 16 *W. Saratoga St.*

S. B. and M. D., University of Oklahoma, 1909 and 1913.

CATHRYN VEDALIA RILEY. Washington, D. C. 1713 *Fairmount Av.*
A. B., Wellesley College, 1912; S. B., Cornell University, 1916; A. M., Johns Hopkins University, 1916; Fourth year medical student, J. H. U.

ADOLPH SILVESTER RUMREICH. Pisek, N. Dak. 2237 *Mondawmin Av.*
A. B., University of North Dakota, 1917; M. D., Washington University, 1920.

LOUIS SCHAPIRO. New York City. *Altamont Hotel.*
M. D., George Washington University, 1907; Director in Costa Rica, International Health Board, 1914-1921.

JAMES SHIRLEY SWEENEY. Gainesville, Texas. 35 *Talbot Rd.*
A. B. and A. M., Texas Christian University, 1917 and 1918; M. D., Vanderbilt University, 1921.

CHARLOTTE CONDICT VAN WINKLE. Rutherford, N. J. 733 *N. Br'dway.*
A. B., Smith College, 1914; M. D., Johns Hopkins University, 1921.

(20)

CANDIDATES FOR THE DEGREE OF DOCTOR OF SCIENCE IN HYGIENE

DONALD LESLIE AUGUSTINE. Kasson, Minn. *Y. M. C. A.*
S. B., Macalester College, 1918. *Helminthology.*

ANNA MEDORA BAETJER. Baltimore. 500 *Roland Av.*
A. B., Wellesley College, 1920. *Physiology.*

CLENNIE ELSIE BAILEY. Terre Haute, Ind. 1608 *Linden Av.*
A. B., Indiana State Normal School, 1918. *Immunology.*

ELERY RONALD BECKER. Rocky Ford, Colo. 813 *N. Howard St.*
A. B., University of Colorado, 1921. *Protozoology.*

SHULAMITE BEN-HAREL. Palestine. 1919 *Eutaw Place.*
A. B., Constantinople College, 1918; S. M., University of Chicago, 1922. *Protozoology.*

ELEANOR ALBERT BLISS. Baltimore. 1026 *N. Calvert St.*
A. B., Bryn Mawr College, 1921. *Bacteriology.*

MARY JEANNETTE CHAPMAN. Brownsville, Tenn. 1608 *Linden Av.*
A. B., Randolph-Macon Woman's College, 1920. *Immunology.*

LEMMIE ROSCOE CLEVELAND. Union, Miss. 220 *W. Monument St.*
S. B., University of Mississippi, 1917. *Protozoology.* [Fellow, 1921-22.]

HOBART WILLIAM CROMWELL. Center Point, Ind. 1922 *Madison Av.*
A. B., Indiana State Normal School., 1917. *Immunology.* [Fellow, 1921-22.]

WILLIAM THURBER FALES. Malden, Mass. 2936 *Clifton Av.*
S. B., Massachusetts Institute of Technology, 1917; C. P. H., Harvard University and Massachusetts Institute of Technology, School of Public Health, 1920; Instructor in Epidemiology, Johns Hopkins University. *Epidemiology.*

BIENVENIDO MARIA GONZALES. Apalit, P. I. 2136 *Oak St.*
B. Agr., University of the Philippines, 1913; S. M., University of Wisconsin, 1915. *Statistics.*

MARY GOVER. Baltimore. 307 *E. 30th St.*
A. B., Goucher College, 1913; A. M., Johns Hopkins University, 1917; Assistant in Biometry and Vital Statistics, Johns Hopkins University, *Statistics.*

WILLIAM ALBERT HOFFMAN. New York City. 2118 *Penrose Av.*
S. B., Cornell University, 1917. *Entomology.*

RACHEL EMILIE HOFFSTADT. Madison, Ind. 419 *E. 22nd St.*
S. B., Hanover College, 1908; S. M. and Ph. D., University of Chicago, 1912, and 1915. *Bacteriology.*

FRANCIS OLIVER HOLMES. Cambridge, Mass. 230 *N. Kenwood Av.*
S. B., Massachusetts Institute of Technology, 1921. *Protozoology.*

FRANK LOUIS KLEEBERGER. Berkeley, Cal. *Y. M. C. A.*
S. B. and A. M., University of California, 1908 and 1915. *Physiology.* [Fellow, 1921-22.]

ETHEL MAY KINNEY. Larned, Kans. 914 *E. Madison St.*
A. B. and A. M., University of Kansas, 1918 and 1920; Assistant in Bio-Chemistry, Johns Hopkins University. *Bio-Chemistry.*

BERTHA LANGWILL. Rockford, Ill. 1910 *Mt. Royal Av.*
S. B., Rockford College, 1916; S. M., University of Illinois, 1918. *Bacteriology.*

VICTOR EMANUEL LEVINE. Omaha, Neb. 312 *W. Monument St.*
A. B., College of the City of New York, 1909; A. M. and Ph. D., Columbia University, 1911 and 1914. *Bio-Chemistry.*

HENRIETTA LISK. Fort McCoy, Fla. 1610 *Bolton St.*
S. B. and S. M., Florida State College, 1907 and 1909; A. M., Columbia University, 1917. *Bacteriology.* [Fellow, 1921-22.]

CLAIRE MCDOWELL. Baltimore. 1816 *W. Baltimore St.*
A. B., Goucher College, 1917. *Physiology.*

JOHN RICE MINER. Baltimore. *Towson.*
A. B., University of Michigan, 1913; Associate in Biometry and Vital Statistics, Johns Hopkins University. *Statistics.*

EDITH EVELYN NICHOLLS. Williamsburg, Mass. 3409 *Guilford Terr.*
A. B.. Smith College, 1919. *Physiology.*

SAMUEL PITLIK. Baltimore, Md. 1818 *E. Baltimore St.*
A. B., Clark College, 1917; A. M., University of Chicago, 1918. *Statistics.* [Fellow, 1921-22.]

HORACE MANN POWELL. Terre Haute, Ind. 4002 *Ridgewood Av.*
A. B., Indiana State Normal School, 1914. *Immunology.*

DA WILLIAMS PRITCHETT. Baltimore. *Homewood Apts.*
A. B., Bryn Mawr College, 1914; Instructor in Immunology, Johns Hopkins University. *Immunology.*

BRUCE DODSON REYNOLDS. Long Island, Va. 813 *N. Howard St.*
S. B., University of Virginia, 1920. *Protozoology.* [Fellow, 1921-22.]

NORMAN RUDOLPH STOLL. Detroit, Mich. 3709 *Yosemite Av.*
S. B., Mount Union College, 1915; S. M., University of Michigan, 1918. *Helminthology.*

JOSEPH CHARLES SWENARTON. Washington, D. C. 1023 *W. Lanvale St.*
S. B., Pennsylvania State College, 1918. *Bacteriology.*

EDGAR SYDENSTRICKER. Washington, D. C. *Building C, 7th and B Sts.*
A. B., Fredericksburg College, 1900; A. M., Washington and Lee University, 1902. *Epidemiology.*

WEI SUN TAO. Weisih, China.
S. B., Columbia University 1921. *Bacteriology.*

(31)

CANDIDATES FOR THE CERTIFICATE IN PUBLIC HEALTH

ANDRÉS CASTRO. San Jose, Costa Rica. 1214 *Madison Av.*
M. D., University of Maryland, 1921.

FREDERICK WILLIAM DERSHIMER. Beaver Falls, Pa.
M. D., Jefferson Medical College, 1915.

WILLIAM LOCKWOOD THORNTON GOODISON. Larimore, N. Dak.
M. D., Jefferson Medical College, 1909. 1012 *Madison Av.*

JOSE GUERRERO. Leon, Nicaragua. 3327 *Alto Av.*
B. Sc. e Lett., National Institute of Occidente, 1912; M. D., University of Michigan, 1919.

WILLIAM WARREN KNIPMEYER. Terre Haute, Ind.
A. B., University of Missouri, 1917; M. D., Washington University, 1919. 2237 *Mondawmin Av.*

GEORGES LAMBRICHTS. Liége, Belgium. 1020 *N. Calvert St.*
S. B., Royal Athénée of Liége, 1910; M. D., University of Liége, 1921.

THOMAS JOHN LE BLANC. Cheboygan, Mich. 312 *W. Monument St.*
A. B. and M. S. P. H., University of Michigan, 1917 and 1920.

JARKA MASEK. Nova Paka, Bohemia.
M. D., University of Prague, 1913.

OTAKAR SLANINA. Brno, Moravia. *St. Paul and 25th Sts.*
M. D., University of Vienna, 1909.

GIU-CHING TING. Chekiang, China. 1110 *Madison Av.*
M. D., Chiba Medical College, 1914.

CZESLAW WROCZYNSKI. Biala, Poland. *St. Paul and 25th Sts.*
M. D., University of Saratow, 1915.

(11)

CANDIDATES FOR THE DEGREE OF BACHELOR OF SCIENCE IN HYGIENE

MARGARET VON TORNEY FRANCE. Baltimore. 219 *W. Lanvale St.*
A. B., Bryn Mawr College, 1919.

MARTIN FROBISHER, JR. Englewood, N. J. 606 *N. Gilmor St.*
Student, Cornell University, 1916-17, 1919-20.

OLIVE CUSHING SMITH. Baltimore. 4 *East Biddle St.*
Student, Goucher College, 1914-16; Johns Hopkins University, 1919-20.

JEAN CHIRON SNYDER. Elyria, O. 3409 *Guilford Terr.*
A. B., Wellesley College, 1918.

(4)

SPECIAL STUDENTS

GERMAN ABADIA. Bogota, Colombia. 1602 *N. Payson St.*
B. Ph. e Lett., Colegio Nacional de S. Bartolome, 1910; M. D., Universidad Nacional de Colombia, Bogota, 1918. *Bacteriology; Chemical Hygiene; Immunology; Physiological Hygiene; Public Health Administration; Statistics.*

JOSEPH ALBERT BAUDOUIN. Montreal, Canada.
M. D. and D. P. H., Laval University 1900 and 1912. *Physiological Hygiene; Statistics; Intensive Course.*

JULIA ERNESTINE BECKER. Baltimore. 4015 *Brookline Av.*
S. B., Cornell University, 1918; Assistant in Bio-Chemistry, Johns Hopkins University. *Anatomy; Chemical Hygiene.*

ALBERT EDWARD BEST. Chengtu, West China.
A. B. and M. B., University of Toronto, 1911 and 1913. *Parasitology.*

JOSEPH CELEREK. Lublin, Poland.
M. D., University of Krakow, Poland, 1913; Chief, State Epidemiological Institute, Ministry of Public Health, Lublin. *Bacteriology; Immunology.*

EDWIN CHARLES CORT. Chiengmai, Siam.
A. M., Washington and Jefferson College, 1901; M. D., Johns Hopkins University, 1907. *Protozoology.*

JAROSLAV J. DRBOHLAV. Ostrava, Czechoslovakia. 1010 *Madison Av.*
M. D., University of Prague, 1917; Director, Bacteriological Laboratory, Ostrava. *Parasitology; Entomology.*

CHARLES FRANKLIN ELVERS. Baltimore. *Arlington.*
Student, Maryland State College, 1915-1916. *Anatomy; Histology; Pathology.*

NORRIS MCLLOYD ERB. Baltimore. 2014 *N. Calvert St.*
Chemical Hygiene; Immunology.

BOHUSLAV FEIRABEND. Prague, Czechoslovakia.
M. D., University of Prague, 1919. *Bacteriology.* (May and June, 1921.)

ARMINIO FRAGA. Rio Janeiro, Brazil.
M. D., Bahia Medical School, 1917. *Epidemiology; Public Health Administration; Venereal Diseases.*

GABRIEL GARZON COSSA. Vera Cruz, Mexico.
M. D., National University of Mexico, 1913. *Bacteriology; Protozoology.*

MANUEL GUTMAN GICHNER. Baltimore, Md. 1516 *Madison Av.*
A. B., and M. D., Johns Hopkins University, 1916 and 1920. *Entomology; Parasitology.*

RATTANSHA MERWANJI HAKIM. Bombay, India. 1100 *Madison Av.*
M. D., University of Maryland, 1920. *Epidemiology; Helminthology; Immunology; Parasitology; Public Health Administration.*

VILEM HONS. Padoli by Prague, Czechoslovakia. 2332 *Guilford Av.*
M. D., University of Prague, 1915. *Chemical Hygiene.*

CONCHITA ENRIQUETA MCLEAN. Panama City. 2207 *Guilford Av.*
Metabolism and Diet.

BIRKHEAD MACGOWAN. Baltimore. *Sydenham Hospital.*
S. B., University of Tennessee, 1915; M. D., Johns Hopkins University, 1919. *Public Health Administration.*

SHINNOSUKE MORI. Darien, S. Manchuria. 5212 *Harford Rd.*
M. D., Imperial University of Kyoto, Japan, 1911. *Chemical Hygiene.*

LOUISE ELEANOR OLD. Los Angeles, Cal. 515 *N. Wolfe St.*
Bacteriology; Immunology; Parasitology.

JOSEPHINE PASSMORE. Milwaukee, Wis. 18 *Midvale Rd.*
A. B., University of Wisconsin, 1921. *Anatomy; Histology; Pathology.*

FAUSTO ROBLETO. Granada, Nicaragua. 746 *Reservoir St.*
M. D., Universidad Angelopolitana, Mexico, 1915. *Bacteriology; Entomology; Epidemiology; Helminthology; Physiological Hygiene; Protozoology.*

JOHN LEWIS ROSEDALE. London, England. 750 *Reservoir St.*
A. B. and A. M., Oxford University, 1908 and 1912; Ph. D., University of Bonn, 1914. *Chemical Hygiene.*

OTTO SCHUBERT. Prague, Czechoslovakia. 1009 *Madison Av.*
M. D., German University of Prague, 1919; Instructor, German University of Prague. *Parasitology; Immunology.*

KAREL URBANEK. Prague, Czechoslovakia.
M. D., Charles University of Prague, 1911; Official, Ministry of Health, Prague, *Bacteriology; Immunology.*

MILDRED WINCHESTER. Holliston, Mass. 207 *W. 27th St.*
A. B., Wellesley College, 1919. *Immunology.*

(25)

STUDENTS REGISTERED FOR THE INTENSIVE COURSE FOR PUBLIC HEALTH OFFICERS

JOHN LYELL CLARKE. Richmond, Va.
Sanitary Engineer, Mississippi State Board of Health.

JUAN SEPULVEDA FERNANDO. Bulacan, P. I.
M. D. University of the Philippines, 1914; C. P. H., Albany Medical College and New York State Department of Health, 1921; Medical Inspector, Philippine Health Service.

LUIS GAITAN. Guatemala, C. A.
M. D., Guatemala University, 1900; Member of Commission against Yellow Fever; Inspector of Hygiene in the South Zone of Guatemala.

JAMES HENRY HILL. Talladega, Ala.
M. D., Birmingham Medical College, 1909; County Health Officer for Talladega County; Field Agent, U. S. P. H. S.

FRED MORREL HOUGHTALING. Huron, O.
M. D., Baltimore Medical College, 1896; Health Commissioner for Erie County, Ohio.

ARTHUR ALBERTUS KIRK. Tuscaloosa, Ala.
M. D., University of Alabama, 1897; County Health Officer for Tuscaloosa County.

GILBERT EVERETT ROBBINS. Chillicothe, O.
M. D., Kentucky School of Medicine, 1889; Health Commissioner for Chillicothe and Ross Counties, Ohio.

CYRUS MARTIN SHIPP. Jackson, Miss.
M. D., Tulane University, 1915; Director of Malarial Control Work of Mississippi.

ALBERT BENJAMIN TONKIN. Cheyenne, Wyo.
M. D., University of Colorado, 1904; State Health Commissioner of Wyoming.

(9)

STUDENTS REGISTERED FOR THE INTENSIVE COURSE IN MEDICAL ZOOLOGY

ARTHUR SIDNEY BEDELL. Brooklyn, N. Y.
A. B., Dartmouth College, 1909; S. B., Robert College, 1921.

MARK FREDERICK BOYD. St. Paul, Minn.
M. D. and M. S., Iowa State University, 1911 and 1913; C. P. H., Harvard University and Massachusetts Institute of Technology, 1914.

CHARLES RAYMOND COX. Baltimore, Md.
S. B. in Hygiene, Johns Hopkins University, 1921.

EDWARD MARSHALL CRAIG, JR. Hickory, N. C.
A. B., Washington and Lee University, 1914; A. B., Yale University, 1916; S. B., Massachusetts Institute of Technology, 1921.

JOHN FRANKLIN DOCHERTY. Seaforth, Ontario.
A. B. and M. B., University of Toronto, 1916 and 1920.

WILLIAM HENRY DUMONT. Amsterdam, N. Y.
A. B. and S. M., Rutgers College, 1920-1921.

HENRY ADAMS JOHNSON. Newburyport, Mass.
S. B., Massachusetts Institute of Technology, 1912.

EDWARD MUNROE KNIGHTS. Riverside, R. I.
Ph. B., Brown University, 1917.

LOUVA GERHARD LENERT. Austin, Texas.
S. B., Agricultural and Mechanical College of Texas, 1906.

ESTUS HUBERT MAGOON. Atwood, Ill.
S. B., Purdue University, 1913; S. M., Massachusetts Institute of Technology, 1914.

JEROME JOHN MILDAZIS. Pottsville, Pa.
C. E., Lehigh University, 1920.

Nelson Hamilton Rector. Baltimore, Md.
B. E., Johns Hopkins University, 1921.

Hurbie Andrews Taylor. Kinston, N. C.
M. D., University of Alabama, 1914.

Walter von Dohlen Tiedeman. Schenectady, N. Y.
B. E. and M. C. E., Union University, 1913 and 1914.

William Weston. Columbia, S. C.
S. B., University of South Carolina, 1921.

David Bruce Wilson. Toronto, Ontario.
A. B. and M. B., University of Toronto, 1916 and 1920.

(16)

STUDENTS REGISTERED IN THE GRADUATE SCHOOL TAKING SPECIAL COURSES

Artie Fleet Barrier, S. B.	*Bacteriology.*
Anita Shemwell Dowell, A. B.	*Entomology Lectures.*
Mary Jane Hille, S. B.	*Anatomy; Histology; Physiology.*
Charles Huntington Howard, A. B.	*Bacteriology.*
Archibald Stuart Hunter, S. B.	*Bacteriology.*
Marguerite Livingston, S. B.	*Histology.*
Margaret Riegel, S. B.	*Metabolism and Diet.*
Edwin Herbert Shaw, Jr., A. B.	*Bacteriology.*
Edith Totten, A. M.	*Anatomy; Histology; Physiology.*
Tomi Wada, A. M.	*Anatomy.*
Ging-Hsi Wang, A. B.	*Anatomy; Histology; Physiology.*
Tsin-Sheng Yang, A. B.	*Anatomy.*

(12)

STUDENTS REGISTERED IN THE COLLEGE COURSES FOR TEACHERS TAKING SPECIAL COURSE IN HYGIENE

Irene Elizabeth Bullen, A. B.	Anne Christine Shamburger.
Teressa Fountain.	Blanche Smith.
Pearl Heaps, A. B.	Minnie Cecelia Smith.
Rosina Coblens Joseph.	Clara May Spielman.
Hilda Anna Louise Kratsch.	Honora Talbott.
Edith Grace Rice, S. B.	Elizabeth Lenore Wild.
Catherine Diggs Schnepfe.	

(13)

SUMMARY

Candidates for the degree of Dr. P. H.	20
Candidates for the degree of Sc. D. in Hygiene	31
Candidates for the Certificate in Public Health	11
Candidates for the degree of S. B. in Hygiene	4
Special Students including students in the Intensive Courses	75
	141

ADVISORY BOARD OF THE FACULTY

FRANK J. GOODNOW, *President*

CARROLL G. BULL
WILLIAM W. FORD
ALLEN W. FREEMAN
WADE H. FROST
JOHN H. GREGORY
ROBERT W. HEGNER
WILLIAM H. HOWELL
Assistant Director
ELMER V. MCCOLLUM
RAYMOND PEARL

WILLIAM H. WELCH, *Director*

By resolution of the Board of Trustees this Board is "instructed to report to the Trustees from time to time their suggestions and to prepare and carry forward the proper arrangements for the instruction and graduation of students in the School."

EXECUTIVE COMMITTEE

THE PRESIDENT OF THE UNIVERSITY
THE DIRECTOR
THE ASSISTANT DIRECTOR

LIBRARY COMMITTEE

ELMER V. MCCOLLUM
Chairman
LOWELL J. REED
GEORGE H. ROBINSON
REYNOLD A. SPAETH
ELISABETH S. THIES
THE LIBRARIAN OF THE UNIVERSITY, *ex officio*

COMMITTEE ON APPLICATIONS

CARROLL G. BULL
WILLIAM W. FORD
ROBERT W. HEGNER
WILLIAM H. HOWELL
Chairman

COMMITTEE ON PUBLICATIONS

ROBERT W. HEGNER
Chairman
WILLIAM H. HOWELL
RAYMOND PEARL

OTHER OFFICERS

MARY LOUISE DURHAM, *Secretary*	1700 *St. Paul St.*
ELISABETH S. THIES, *Librarian*	2122 *Chelsea Av.*
ETHEL NORRIS, *Artist*	10 *W. 25th St.*

GENERAL STATEMENT AND REQUIREMENTS FOR ADMISSION

SCHOOL OF HYGIENE AND PUBLIC HEALTH

GENERAL STATEMENT

The need of larger and better opportunities in this country for training and investigation in the science and art of Hygiene and Public Health has long been recognized. With the rapid advance in our knowledge of the causes and mode of spread of infectious diseases has come a correspondingly increased power of prevention which has greatly stimulated interest in preventive medicine and has strengthened the demands for improved standards of public health organization and administration. Especially urgent is the need for men and women trained to undertake work in this field which already offers attractive careers for those properly qualified, and will offer opportunities in larger measure as the necessity for such training is more widely appreciated. It was a source of great gratification to the Johns Hopkins University to be enabled to open in October, 1918, a School of Hygiene and Public Health designed to meet the need thus briefly indicated.

In June, 1916, the Rockefeller Foundation of New York notified the President of the Johns Hopkins University that the Foundation was prepared "to co-operate with the University in the establishment of a School of Hygiene and Public Health for the advancement of knowledge and the training of investigators, teachers, officials and other workers in these fields."

This offer was accepted by the University, and on June 12, 1916, the President of the University made the formal announcement that the Board of Trustees had authorized the establishment of a School of Hygiene and Public Health as part of the University. Dr. William H. Welch was appointed

Director and Dr. William H. Howell was named to assist in the work of organization.

The history of the events leading up to this action is in brief as follows: On October 16, 1914, the General Education Board called a conference of leading authorities in public health work to consider the general question of the training of qualified sanitarians and public health officials. At the request of this conference Dr. W. H. Welch and Mr. Wickliffe Rose undertook to prepare a plan for an institute of public health and hygiene for submission to the General Education Board and the members of the conference. This report was made to the General Education Board on May 27, 1915. Subsequently, on the instruction of the Board, a committee was appointed to determine where such an institution could be located most advantageously. Acting upon the information gathered by this committee the Rockefeller Foundation decided "largely by reason of the facilities, organization and ideals of its Medical School," to establish a School of Hygiene and Public Health at the Johns Hopkins University.

The main objects of the School are to establish courses for the training of qualified persons for public health work, to promote investigative work in hygiene and preventive medicine and provide opportunities for the training of investigators in these subjects, and to develop adequate means for the dissemination of sound hygienic knowledge. Special and mutual advantages arise from the close relationship between the School and the International Health Board of the Rockefeller Foundation, particularly in field work and in the opportunities for investigation and training in tropical medicine and the control of special diseases. As outlined at present the work of the School is organized under the following divisions: a department of bacteriology, serology and immunology; a department of medical zoölogy; a department of epidemiology and public health administration; a department of biometry and vital statistics; a department of chemical hygiene; a department of physiological hygiene; a

department of sanitary engineering. Provision is made for instruction in personal hygiene, mental and social hygiene and sanitary law. Facilities for field work are provided through co-operation with the State and City departments of health and also by means of a County Health Unit located at Hagerstown, Washington County. This Unit is supported by four public health agencies, the State Department of Health, the U. S. Public Health Service, the International Health Board, and the School of Hygiene and Public Health. Students spend part of their time in residence at Hagerstown to become acquainted with the organization and activities of this unit.

A suitable lot of land has been purchased at the corner of Monument and Wolfe streets, immediately adjacent to the grounds of the Medical School and the Johns Hopkins Hospital. Plans have been made for the erection of buildings upon this lot to contain the laboratories, library, museum and offices of the School. Pending the erection of these buildings the School has been established in a large laboratory, 310-312 West Monument street, formerly occupied by the physical department of the Johns Hopkins University. This building and some of the adjacent laboratories have been completely renovated and equipped for the use of the School. Instruction began October 1, 1918.

COURSES AND DEGREES

I. Course leading to the degree of Doctor of Public Health (Dr. P. H.):

The course consists of specified work throughout two years, together with a summer spent in field work in some organized public health service. The specified work consists in the satisfactory completion of a certain number of required and elective courses. Courses are required in Bacteriology, Immunology, Chemical Hygiene, Physiological Hygiene, Sanitary Engineering, Parasitology, Statistics, Epidemiology and

Public Health Administration. The elective courses may be selected according to the needs of the individual student, either to broaden his instruction or to specialize to some extent by doing advanced work in some one department. The details of these courses are described in the section on Schedules (p. 69). An essay based upon individual study of some problem or subject in hygiene is to be submitted before receiving the degree. The following groups of students will be accepted as candidates for this degree:

a. Graduates of approved medical schools who have had a liberal education as evidenced by a degree in arts or science, or its equivalent. These candidates will be required to pursue a two-years' course together with one summer of practical work in an organized public health service.

b. Students who have completed satisfactorily three years of the course in an approved medical school and who have had a liberal education as evidenced by a degree in arts or science, or its equivalent, may be accepted as candidates for this degree while completing the course in medicine. Arrangements have been made with the Johns Hopkins Medical School whereby a student may receive his degree in medicine on the completion of four years of work, and his degree in public health after an additional or fifth year of work in the School of Hygiene and Public Health, together with a summer spent in practical field work. In their fourth year these students may fill all of their elective hours with subjects taken from the curriculum of the School of Hygiene and Public Health. A combined course of a similar character may be obtained with other medical schools by special arrangement.

II. Courses leading to the degree of Doctor of Science in Hygiene:

The underlying object in the arrangement of these courses

is to train specialists in the various departments of public health work, and to afford an opportunity for those not graduated in medicine to take part in such work. The candidate is expected to absolve certain courses of a basic character, but for the most part his time is devoted to advanced work in some one department. This work must include a special investigation of some problem the results of which are to be presented in the form of a dissertation. In view of the special requirements and the time implied in completing successfully a definite research, it may be assumed that after obtaining the bachelor's degree at least three years of work will be necessary to meet all the requirements of the degree of Doctor of Science in Hygiene.

To be accepted as a candidate for this degree the following requirements must be fulfilled.

a. A degree in arts or science or its equivalent, as evidence of a liberal education.

b. Certificates of the satisfactory completion of adequate courses in chemistry, physics, and biology.

c. Certificates of the satisfactory completion of adequate courses in anatomy, physiology, and pathology.

d. In exceptional cases, on the recommendation of the head of a department, a candidate may be accepted who offers in place of (c) satisfactory evidence of special training of an advanced character in subjects fundamental to his main field of work.

After acceptance as a candidate the student will be assigned for advice and guidance to the head of the department in which he will specialize. In order to be recommended for the degree the candidate must pass satisfactory written and oral examinations in his major subject and must present a dissertation, in prescribed form, embodying the results of an independent investigation. This dissertation must be presented to the Director, who will refer it for examination to a special committee. If the report of the committee is favor-

able the candidate will be asked to appear before the faculty for the oral examination. The dissertation must be published in whole or in part within a year after its acceptance by the faculty.

III. Course leading to a Certificate in Public Health:

A certificate in public health may be awarded to qualified persons after one year of residence and the satisfactory completion of lectures and laboratory courses equivalent in amount to the work of a full academic year. The courses followed must include practical work in bacteriology, sanitary engineering, statistics and epidemiology and in such other courses as may be approved by the faculty.

Candidates for these certificates must be graduates in medicine of an approved medical school or graduates in arts or science who can furnish satisfactory evidence of previous training in the physical and medical sciences. Qualified public health officers or physicians who are not able to give an entire year to this work may complete the course and obtain the certificate by taking the trimesters separately during two or more years.

IV. Course leading to the degree of Bachelor of Science in Hygiene:

The course requires two years of work taken partly in the School of Hygiene and Public Health and partly in the Medical School. The first year's work consists of courses in anatomy, histology, physiology, bacteriology, physiological hygiene and personal hygiene. The second year's work consists of courses in sanitary engineering or statistics, chemical hygiene, immunology, parasitology, pathology and dietetics. The arrangement of these courses is such as to permit some specialization. The requirements for matriculation in this course are as follows:

a. Certificate of matriculation in an approved college and the completion of at least two years of college work.

b. Certificates of adequate courses in biology, physics, and chemistry, including organic chemistry.

By an adequate course is meant in physics one year of college work covering approximately 100 hours of laboratory and 100 hours of class work; in biology one year of college work covering approximately 150 hours of laboratory and 100 hours of class work; in chemistry one to two years of college work covering approximately 250 hours of laboratory and 120 hours of class work.

V. Intensive Course for Public Health Officers:

This course is offered during the first six weeks of the winter trimester. For the session of 1922-1923 it begins January 2d and ends February 10th. It is intended to meet the needs of public health officers wishing to increase their knowledge of hygiene and public health; and of physicians proposing to enter into public health work who find it impracticable to devote a year or two years to a full course of instruction.

The course of instruction consists of laboratory exercises, lectures, conferences and field demonstrations. Students in the intensive course will be permitted to register for any regular course given in the second trimester provided they have had the necessary preparation and that the course is not already filled. The schedule will permit taking either Bacteriology I or Immunology I on Monday, Wednesday and Friday morning and either Helminthology or Epidemiology I on Tuesday, Thursday and Saturday. Two such courses will occupy the whole of the forenoon for the entire course.

Of the afternoon courses, students in the course will be required to take the conferences in Public Health Problems on Monday and Wednesday, 2-4 p. m. and the lectures on Selected Topics in Hygiene on Wednesday at 4.30 p. m. The remainder of the afternoon hours will be occupied by special lecture courses designed to cover topics of general interest

in Physiological Hygiene, Food and Nutrition, and Public Health Law and by field demonstrations of the various forms of health activity carried on in Baltimore and the vicinity by public and private agencies.

The fee for the courses is $50.00, payable on registration.

VI. Intensive Course in Medical Zoology:

This is a short course lasting three weeks and planned to meet the needs of public health officers interested especially in animal parasites and parasitic diseases. The time of the year at which it is offered may vary and will be announced definitely at the beginning of each academic year. The work consists of lectures, conferences and laboratory exercises occupying the entire time of the three weeks. While consideration is given to practically all the animal forms that cause disease or disseminate disease-producing organisms the principal topics discussed are hookworm disease, malaria, mosquitoes, and fecal diagnosis. The fee for the course is $25.00 payable on registration.

SPECIAL STUDENTS

An opportunity to use the facilities of the School will be granted to the following groups of special students not registered as candidates for a degree:

1. Public health officers who may wish to take one or more lecture or laboratory courses, or engage in the study of some special problem.

2. Other qualified persons who may wish to attend special courses or undertake research work and whose qualifications receive the formal approval of the faculty of the School.

THE DE LAMAR LECTURES IN HYGIENE

A series of popular lectures in personal and public hygiene is arranged each session. The object of these lectures is to bring before the public the general facts and points of view of modern hygiene, with the hope that in this way the School may serve as a center for the distribution of useful knowledge in all matters pertaining to sanitation and preventive medicine. These lectures are supported from the fund bequeathed to the Medical School by Joseph R. De Lamar.

The course given during the session of 1921-1922 was as follows:

J. W. Schereschewsky, M. D.
Assistant Surgeon-General, United States Public Health Service
on
The Morbid Changes Caused by Variations in Barometric Pressure
Monday, October 24

Robert McCarrison, M. D., D. Sc.
Lieutenant-Colonel, Indian Medical Service
on
Faulty Food in Relation to Gastro-Intestinal Disorders
Monday, November 14

S. Josephine Baker, M. D.
Director, Bureau of Child Hygiene, Department of Health, New York
on
The Place of Child Hygiene in a Public Health Program
Monday, November 28

W. S. Leathers, M. D.
Executive Officer, Mississippi State Board of Health
on
Fundamental Policies Involved in Public Health Administration
Monday, December 12

PAUL A. LEWIS, M. D.
Director, Henry Phipps Institute, Philadelphia
on
Natural Immunity to Tuberculosis
Monday, December 19

EDWARD M. EAST, PH. D.
Professor of Experimental Plant Morphology, Harvard University
on
The Population Problem in its Relation to Public Health
Monday, January 16

CLEMENS PIRQUET, M. D.
Professor of Diseases of Children, University of Vienna, Austria
on
Nutritional Treatment of Tuberculosis in Childhood
Monday, January 23

EDWIN O. JORDAN, PH. D.
Professor of Bacteriology, University of Chicago
on
Interepidemic Iufluenza
Monday, January 30

ROGER I. LEE, M. D.
Professor of Hygiene, Harvard University
on
The Physical Examination of Large Groups of Individuals:
Its Importance, Limitations and Opportunities
Monday, February 6

ELLSWORTH HUNTINGTON, PH. D.
Research Associate in Geography, Yale University
on
Climate, Health and Civilization
Monday, February 13

JOSEPH BARCROFT, F. R. S.
Fellow of King's College, Cambridge, England
on
Physiology of Life in the Andes
Tuesday, February 21

OTTO R. EICHEL, M. D.
Director, Division of Vital Statistics, State Department of Health, New York
on
The Interest of the Physician and the Social Worker in Vital Statistics
Monday, March 20

G. W. MCCOY, M. D.
Director, United States Hygienic Laboratory, Washington
on
Plague
Monday, April 3

BRAYTON H. RANSOM, PH. D.
Chief of the Zoological Division, Bureau of Animal Industry, U. S. Department of Agriculture
on
The Hygienic Importance of Recent Discoveries on Ascariasis
Monday, April 24

JOHN PAUL LOTSY, PH. D.
Research Fellow, Dutch Society of Sciences, Holland
on
The Species-concept in Evolution and Hybridization
Monday, May 1

Course in General Hygiene. In addition to this series of lectures a special course of lectures in general hygiene has been arranged for the summer course of the Johns Hopkins

University, given at Homewood in July and August. This course is given under the direction of Doctor Freeman, and is supported from the De Lamar Fund.

SCHOLARSHIPS

Twelve scholarships carrying free tuition may be awarded annually by the Trustees of the University upon the recommendation of the Faculty. The scholarships are granted for one year, but may be renewed for a second year. Applications for these scholarships will be acted upon in April and December of each session, and candidates should apply to the Director of the School before April 1st or December 1st.

FELLOWSHIPS

Nine fellowships are awarded annually by the Trustees of the University upon the recommendation of the Faculty. They are granted for one year but may be renewed for a second year. These fellowships fall into two classes.

I. Three Research Fellowships. Each fellowship carries an annual stipend of $1,000 and exemption from all tuition fees. The conditions of award are as follows:

1. The applicant must have received his doctor's degree in medicine, science, philosophy or public health, or must have conducted and published a meritorious investigation.
2. The holder of a fellowship must give his time primarily to investigative work approved by some member of the staff of the School, and must be in residence during the academic year unless permission is granted by the faculty to carry on his work elsewhere.

II. Six fellowships carrying each a stipend of $500 a year and exemption from all tuition fees. These fellowships may be awarded to graduate students who are candidates for

the degree of Doctor of Science. Preference will be given to those applicants who are already students in the School. Holders of these fellowships must be in residence during the academic year unless special permission is obtained from the faculty to work elsewhere.

Applications for either class of fellowships should be made in writing to the Director of the School before March 1st.

PUBLICATIONS

The annual catalogue and announcement is issued as the April number of *The Johns Hopkins University Circular.*

In June the researches published during the academic year by members of the staff and advanced students are bound and issued as a volume of Collected Papers. The first volume of this series appeared in June, 1920. These volumes are distributed to public health laboratories and are on sale to individuals.

The *American Journal of Hygiene* supported by an appropriation from the De Lamar bequest to the Medical School is published by the Johns Hopkins Press. Dr. W. H. Welch is Editor and Dr. Charles E. Simon Managing Editor. The journal is devoted to the publication of investigations in hygiene by workers in this country and abroad. The laboratory and field researches carried on in the School appear for the most part in this journal. Monographs on special subjects pertaining to hygiene and preventive medicine will be issued from time to time as supplementary numbers of this journal. For further information address the Managing Editor, School of Hygiene and Public Health, 310-312 W. Monument Street.

REGISTRATION AND CALENDAR

All students upon entering must report at the Director's office for registration and payment of fees.

The academic year is the same as in other departments of the University.

Instruction begins in the fall on the Tuesday nearest to the first of October. The graduating exercises are held on the second Tuesday of June. There are short recesses at Christmas and Easter.

Since instruction is arranged on a trimestral basis, it is possible for candidates for the degree of Doctor of Public Health or Doctor of Science in Hygiene to enter the School at the beginning of any trimester, and to graduate at the end of any trimester. Formal bestowal of degrees takes place at the University Commencement in June and on Commemoration Day, February 22nd.

TUITION

The charge for tuition in the courses leading to a degree or a certificate is $250 per annum, payable at the office of the Director in three instalments, one at the beginning of each trimester. For students taking special courses the charge for one trimestral course, including laboratory work, is $50.00. The charge for shorter courses will be arranged on application.

For further information address the Director of the School of Hygiene and Public Health, Johns Hopkins University, 310-312 W. Monument Street, Baltimore, Md.

DEPARTMENTS OF INSTRUCTION AND ANNOUNCEMENT OF COURSES

DEPARTMENTS OF INSTRUCTION

BACTERIOLOGY

William W. Ford, M. D., Associate Professor.
George H. Robinson, Ph. D., Associate.
Percy D. Meader, Ph. D., Associate.
Linda B. Lange, M. D., Instructor.
Raymond C. Salter, Sc. D., Instructor.
Samuel R. Damon, Ph. D., Instructor.

1. Sanitary Bacteriology. Bacteriology 1. Credit one major. Dr. Meader, Dr. Damon. This course is designed to give students a fundamental training in bacteriology with special reference to sanitary bacteriology. It includes the making of the ordinary culture media, the preparation and use of stains, the microscopic study of organisms, and the methods of isolating and identifying the more common pathogenic and non-pathogenic bacteria. The methods of examining water, milk, sewage, and foods are considered in detail.

Students who have received training in chemistry, physics, and biology, are admitted to this course, and its completion qualifies students for the course in public health bacteriology.

2. Public Health Bacteriology. Bacteriology 2. Credit one major. Dr. Ford, Dr. Robinson, Dr. Lange. This course is designed especially for the training of students in the modern bacteriological methods employed in the diagnosis of the acute respiratory diseases, in the study of the infections of the intestinal tract, in genito-urinary infections and in the examination of water, milk, and foods for their sanitary quality. It includes the study of the pneumococcus, the influenza bacillus and the hemolytic streptococcus from sputum, the diphtheria bacillus from the secretions of the nose and throat, the meningococcus from the spinal fluid, and the etiological agents in gonorrhoea and syphilis. The newer methods for the cultivation of the tubercle bacillus

from sputum are demonstrated, and the isolation of the typhoid, paratyphoid, and dysentery bacilli is practiced as far as possible upon actual cases of disease. The standard methods employed in the examination of water, milk, and food are also included. Only those students will be admitted to this course who can present satisfactory evidence of proper training in elementary bacteriology.

3. Public Health Laboratory Practice. Bacteriology 3. Credit one major. Dr. Salter. (Limited to six students—Prerequisite Bacteriology II). This course is designed to give students an opportunity to do the routine work of a public health bacteriological laboratory. Practice is offered in the bacteriological diagnosis of diphtheria, tuberculosis, typhoid fever, gonorrhoea, syphilis, pneumonia and rabies. The bacteriological examination of water, milk, canned goods, and feces, urine and blood is also carried out. The students will have opportunities to make reports, file records and become familiar with the problem of laboratory management.

4. Spirochaetes and Venereal Infections. Bacteriology 4. Credit one-half major. Dr. Robinson. This course is intended to acquaint the student with the methods of isolating, cultivating and identifying the spirochaetes of syphilis, yellow fever, infectious jaundice, etc. The organisms will be studied by means of dark field illumination, stained preparations and infected tissue. In addition the microscopic diagnosis of venereal infections will be undertaken with reference to the organization and management of venereal disease clinics. The course is offered in the session of 1922-1923 from 9 a. m. to 1 p. m. during the last half of the second trimester.

5. Methods of Cultivating and Identifying Anaerobic Bacteria. Bacteriology 5. Credit one-half major. Dr. Meader. This course is designed to acquaint the student with the various methods of cultivating and studying the anaerobic bacteria with special reference to those pathogenic to man. The application of anaerobic methods to the study

of food decomposition will also be demonstrated. The course will consist of lectures, conferences and assigned laboratory work. This course is offered during the session of 1922-1923 for two afternoons in the third trimester.

6. Physiology of the Bacteria. Bacteriology 6. Credit one-half major. Dr. Salter. This course is designed to give a more detailed account of the physiological aspects of bacterial life than is possible in a general course. A study will be made of the methods employed in the investigation of those physiological problems which are becoming more and more abundant in modern bacteriology. Among other subjects, the facts and theories regarding the following will be considered:

The physico-chemical laws governing the growth and death of micro-organisms; the determination of the chemical composition of bacterial cells; bacterial enzymes and their activity; the chemical reactions involved in bacterial metabolism; the energy transformations in bacterial decomposition; quantitative and qualitative determination of products of bacterial metabolism; hydrogen ion determination by electrometric and colorimetric methods. During the session of 1922-1923 this course is offered for two afternoons in the first trimester.

7. Research in Bacteriology. Dr. Ford. Opportunity will be provided for advanced work and research in bacteriology in a variety of fields. Qualified students will be given problems to work out under the immediate supervision of the Associate Professor of Bacteriology, and opportunities will be offered to candidates for advanced degrees to prepare theses on special topics.

IMMUNOLOGY

Carroll G. Bull, M. D., Associate Professor.
Roscoe R. Hyde, Ph. D., Associate.
Leon C. Havens, M. D., Associate.
Ida W. Pritchett, A. B., Instructor.
Chong Eang Lim, M. B., Dr. P. H., Volunteer Assistant.

1. Immunology 1. Credit one major. Dr. Hyde. This

course is designed for those who have not had previous training in serological reactions and the principles of immunology. Twelve hours a week are devoted to laboratory work, lectures and conferences. The laboratory work gives practical training in (1) the various serological reactions, viz.: agglutination reactions, with bacteria and animal cells; precipitin reactions, particularly for the identification of unknown bloods; complement fixation reactions, the Wassermann reaction and the fixation of complement with bacterial antigens; opsonic titrations, etc., (2) the preparation of the materials used in serological reactions, (3) the preparation of vaccines, and (4) the production and standardization of immune sera, antimicrobic and antitoxic. Special attention is given to practical diagnostic methods.

2. Immunology 2. Credit one major. Dr. Havens. This course is open to recent medical graduates and others who have had some training in serological methods and the principles of immunity. The work is divided into three parts; (1) serological reactions (see Immunology 1), (2) experimental work designed to illustrate the manner in which pathogenic organisms produce their pathologic effects and how the host defends itself against invading organisms, and (3) the preparation of a written review of the literature on some subject germane to the course and of current interest.

3. Immunology 3. Special Courses. Dr. Bull and Miss Pritchett. Prerequisite, Immunology 1 or 2 or their equivalents. Each course is planned to meet the needs of the individual classes, the credit granted depending upon the work accomplished. Work is offered on different phases of serology and immunology. The one-half major course on diphtheria will serve to illustrate the nature of the special courses. This course is as follows: (1) the preparation of toxin for the Schick test, (2) the standardization of diphtheria antitoxin, (3) the preparation of toxin-antitoxin for the active immunization of children, and (4) the estimation of small quantities of diphtheria antitoxin. Arrangements may be made to do the work in the afternoons of any trimester.

4. Opportunities are offered to candidates for advanced degrees to do this work under the direction of different members of the staff.

SANITARY ENGINEERING

John H. Gregory, S. B., Professor of Civil and Sanitary Engineering.
Abel Wolman, A. B. and B. S. E., Assistant in Sanitary Engineering.

The course in sanitary engineering is given at Homewood in the Department of Civil Engineering, and will consist of twelve hours a week, during one trimester, divided into lectures, conferences, laboratory and field work, supplemented by reading. The course is designed to give the student a comprehensive general view of modern sanitary engineering practice. In addition to the main topics of water supply, water purification, sewerage and sewage disposal, together with a discussion of modern methods for the collection and disposal of garbage and other municipal wastes, the subject of environmental sanitation, with particular reference to its engineering phases, is presented. The laboratory exercises will include the study and discussion of existing sanitary works from photographs, lantern slides and working drawings, together with inspection trips in the field to typical water purification, sewage disposal and other sanitary works.

CHEMICAL HYGIENE

Elmer V. McCollum, Ph..D., Sc. D., Professor.
Wyatt W. Randall, Ph. D., Associate.
Margaret B. MacDonald, Ph. D., Associate.
Nina Simmonds, S. B., Associate.
Ethel M. Kinney, A. M., Assistant.
J. Ernestine Becker, S. B., Assistant.

1. Chemistry of Food, Water, etc. — Chemical Hygiene 1. Credit one major. Dr. W. W. Randall. The course consists of laboratory work, lectures and conferences, 12 hours per week during one trimester. The laboratory

work includes the technic of food and water analysis, the detection of adulterants, and the exercise of Government control over food products which enter into commerce. The object of the course is to familiarize students with the chemical methods employed in food laboratories and health departments.

2. Chemistry of Metabolism. Chemical Hygiene 2. Credit one major. Dr. Margaret B. MacDonald. This course consists of 12 hours laboratory work, with conferences, during one trimester. It deals with methods used for the study of metabolism. The student is given practice in methods for the analysis of blood, urine and feces. Special attention is given to the interpretation of analytical data. The conferences will consist of reports on selected topics in metabolism. Students who have satisfactorily completed Chemical Hygiene 1 are eligible to this course.

3. Metabolism and Diet. Chemical Hygiene 3. Dr. E. V. McCollum. Three lectures or conferences weekly during one trimester. In this course will be given assigned readings. The more important researches which have contributed to present-day knowledge in this field are presented. The results of animal experimentation are correlated with human experience as far as possible. The special dietary properties of our natural food products are discussed and the evidence of the relation between the diet and health of certain large groups of people is presented.

4. Experimental Methods. Chemical Hygiene 4. Credit one-half major. Miss Simmonds. This course will provide an opportunity for students who expect to become investigators to become familiar with the experimental methods used in this and other laboratories for the study of problems of nutrition.

It will afford a demonstration of the effects of specific faults in the diet on the nutrition of the rat as exhibited in the development of one or another so-called deficiency disease, the effects on the nervous system, and other criteria by means

of which one can interpret the effects of malnutrition. The course will be open only to students who are prepared to benefit by it.

Instruction will be given by assigned readings, and the preparation of reports. There will be one conference weekly during one trimester.

5. Research. Chemical Hygiene 5. Dr. E. V. McCollum and Dr. Margaret B. MacDonald. Those who have the necessary preliminary training and who desire to do work of special nature will be received at any time during the academic year.

MEDICAL ZOOLOGY

Robert W. Hegner, Ph. D., Associate Professor of Protozoology.
William W. Cort, Ph. D., Associate Professor of Helminthology.
William H. Taliaferro, Ph. D., Associate in Protozoology.
Francis M. Root, Ph. D., Associate in Medical Entomology.
Charles E. Simon, M. D., Lecturer in Medical Zoology.
Donald L. Augustine, S. B., Assistant in Helminthology.
Elery R. Becker, A. B., Assistant in Protozoology.
William A. Hoffman, S. B., Assistant in Medical Entomology.

Medical Zoology is the study of animals that cause human disease, are of direct injury to man, or that disseminate disease producing organisms. It may be divided conveniently into three sections, Protozoology, Helminthology, and Medical Entomology. From a public health standpoint, the most important species of protozoa and helminths are those parasitic and pathogenic to man. The phenomena presented by the parasitic species, however, can only be interpreted on the basis of a knowledge of free living species or those living in lower animals which are accessible for both observational and experimental studies. Emphasis is placed on the medical aspects of the invasion of man by parasitic animals. The insects and related organisms of public health interest act mostly as carriers of pathogenic organisms from diseased to healthy persons. Related to them are animal reservoirs such

as the rat in the case of the plague flea. The department aims to prepare students for public health work in medical zoology and to train advanced students for teaching positions and research work.

1. Medical Zoology 1. Credit one major. Drs. Hegner, Cort, Taliaferro, Root, and Simon. Three mornings per week during one trimester.

This course is designed to give a survey of the entire field of medical zoology. The more practical phases of protozoology, helminthology and medical entomology are emphasized. The student is taught to recognize the species of parasites pathogenic to man and the diseases caused by them; how to collect, prepare for study, examine, and cultivate the more important species; and the practical methods of prevention and control.

The lectures are supplemented by the required reading of scientific articles in periodicals and reference books.

The laboratory work includes the study of stages of the life histories of the parasites; methods of preparing material for study; methods of laboratory diagnosis, and the cultivation of parasites in lower animals and in artificial media.

This course is required for candidates for the degree of Doctor of Public Health. Students who expect to work in the southern United States or in the tropics should elect, if possible, the special courses in Protozoology, Helminthology and Medical Entomology instead of the course in Medical Zoology outlined above.

2. Protozoology. Medical Zoology 2. Credit one major. Drs. Hegner, Taliaferro, Simon, and Mr. Becker. Three mornings per week during one trimester.

The aims of this course are (1) to gain a general knowledge of the biology of the protozoa; (2) to become acquainted with pathogenic species and the diseases caused by them; (3) to learn methods of preventing the spread of pathogenic species by the control of the agents of transmission; (4) to acquire a knowledge of the problems presented by

pathogenic species and the ability to solve them; thus laying the foundation necessary for carrying on original investigations, and making it possible to take charge of public health work in protozoology in any community, and to direct campaigns in cases of epidemics.

The lectures are devoted to the presentation and discussion by instructors and students of information obtained from original observations, from current literature, and from text and reference books.

In the laboratory the four classes of protozoa are considered separately, involving the study (1) of typical free-living species, (2) of species parasitic in lower animals and (3) a more detailed examination of species parasitic in man. Methods are given for collecting, cultivating and preparing for study both free-living and parasitic protozoa.

3. Helminthology. Medical Zoology 3. Credit one major. Dr. Cort, Dr. Simon and Mr. Augustine. Three mornings per week during one trimester.

This course aims (1) to give a general knowledge of the biology of the flatworms (Platyhelminthes), round worms (Nemathelminthes), and certain other worms; (2) to acquaint the student with pathogenic species and the diseases caused by them; (3) to supply practice in methods of diagnosis; (4) to present methods of preventing the spread of pathogenic species by the control of the agents of transmission; (5) to furnish a knowledge of the problems presented by pathogenic species that will enable the student to carry on original investigations or take charge of public health work in helminthology.

Lectures are given each day which cover (1) the classification, structure and life history of the worms parasitic in man and (2) the distribution, symptomatology, pathology, diagnosis and control of the diseases of man produced by parasitic worms. The literature of human helminthology is as far as possible placed at the disposal of the student and emphasis is placed on the consultation of original papers rather than text books.

The laboratory work includes a study of the general biology of the groups of parasitic worms which have human representatives and of the structure and life history of the parasitic worms of man and their close relatives. A careful study is made of the eggs of the human helminths to prepare the student for the diagnosis of these diseases. Whenever possible, living material is studied, the free stages of the worms are cultured and experimental life-histories are carried through.

4. Medical Entomology. Medical Zoology 4. Credit one major. Dr. Root and Mr. Hoffman. Three mornings per week during one trimester.

This course is devoted chiefly to a study of the arthropods which transmit the bacteria, protozoa and worms that cause disease in man. The few arthropods which cause human disease directly are also considered. In this connection insect venoms are taken up and comparisons made with snake venoms.

The course aims: (1) to acquaint the student with the fundamentals of insect structure and classification; (2) to enable him to distinguish the species which carry disease from the harmless species; (3) to give him a working knowledge of the life-cycles of harmful species, actual and potential, especial emphasis being placed on the relation of the life-cycle to control measures.

In order to include in the course all groups of insects which may become of sanitary importance, a few species which are known to carry only diseases of the lower animals are also studied. In connection with the study of control measures, the question of animal reservoirs of human disease is taken up, as, for instance, the relation of rats to bubonic plague.

5. Filterable Viruses. Medical Zoology 5. Credit one-half major. Dr. Simon. Three mornings per week during one-half of one trimester.

The aims of this course are (1) to acquaint the student with that important group of micro-organisms which is collectively known by the name of the "filterable viruses" and

with certain other pathogenic agents of indeterminate taxonomic position; (2) to familiarize the student with those methods which have been successfully employed in the search for and in the study of these minute forms of living matter; (3) to enable the student to recognize those pathological changes in the tissues of the host which are diagnostic of the corresponding diseases; and (4) to call attention to those methods of control which are based upon a knowledge of the biological properties of the organisms under consideration.

The course will comprise lectures, laboratory exercises, conferences, and prescribed readings. The lectures will deal with the general technique employed in the search for and in the study of the filterable viruses; the biology of the filterable viruses, mode of dissemination and infection, and tissue tropism; the filterable viruses from the standpoint of immunology; classification, geographical distribution, economic importance, pathological changes, and methods of control of diseases caused by filterable viruses, such as rabies, poliomyelitis, variola, vaccinia, alastrim, trachoma, mumps, measles, scarlatina(?), encephalitis(?), dengue, pappataci fever, rocky mountain spotted fever, and typhus fever.

The laboratory exercises will include the study of the various methods for determining the presence of filterable organisms; methods of concentrating filterable viruses; methods of isolating the viruses of certain diseases and inoculating them into laboratory animals; the examination of macroscopic and microscopic preparations of pathological lesions; and the study of intermediate hosts.

6. Special Three Weeks Course in Medical Zoology for Health Officers. Medical Zoology 6. Credit one-half major. Drs. Hegner, Cort, Taliaferro, Root and Simon.

This course is designed for Field Directors of the International Health Board and for other Health Officers who may wish to obtain special knowledge of the animals that cause disease or disseminate disease-producing organisms and methods for their control.

Lectures are given each day; these are prepared with special reference to the needs of those attending the course. They generally include (1) descriptions of the most important organisms in each group studied, (2) geographical distribution of the diseases due to animal parasites, (3) effects of the parasites on man, (4) methods of diagnosis, (5) methods of control, and (6) problems yet to be solved.

Laboratory exercises include (1) methods of preparing material for diagnosis, (2) identification of the different types of organisms, (3) life cycles of the parasites, and (4) effects of parasitism on man.

Conferences and Reading Periods. References to books and periodicals will be assigned and informal discussions of the subjects studied will be held including material gathered from the literature and from the personal experience of students and instructors.

Although practically all of the protozoa and worms parasitic in man and most of the insects that are involved in the transmission of disease germs to man are considered in this course, the principal topics emphasized are (1) hookworm disease, (2) fecal diagnosis, (3) malaria, and (4) mosquitoes.

7. Investigations in Protozoology, Helminthology and Medical Entomology. Students who have had sufficient training may undertake original investigations in any of the above subjects. Small problems may be completed by properly qualified students in one trimester, but usually a year or more is required. Those who wish to elect any of these subjects as majors towards the degree of Doctor of Science in Hygiene or Doctor of Philosophy must plan their course so that a large part of their time may be devoted to research.

8. Journal Club. The members of the department and others interested in Medical Zoology form a Journal Club which meets once each week during the school year. One paper is read at each meeting dealing either with original investigations or with recent literature. This is followed by a general discussion. The members of the department are

thus given an opportunity to become acquainted with the details of each other's work and with advances in fields of Medical Zoology related to their own special subjects.

9. Seminary. Once per month during the school year the members of the department and others who are interested meet for an evening of discussion on some phase of Medical Zoology. The program of each meeting consists of the reading of a paper, followed by a discussion.

PHYSIOLOGICAL HYGIENE

William H. Howell, Ph. D., M. D., Professor.
Reynold A. Spaeth, Ph. D., Associate.
Arthur L. Meyer, M. D., Associate.
Janet H. Clark, Ph. D., Associate.
Helene C. Wilson, Ph. D., Instructor.

By physiological hygiene is understood the application of the facts and principles of animal physiology to problems of personal and public hygiene. The important subjects of diet and nutrition are considered in the department of chemical hygiene. In the department of physiological hygiene the subjects taken up, in addition to a general course in animal physiology, are personal hygiene, the physiological effects of exercise and fatigue, of variations in the composition and physical properties of the atmosphere, and of radiant energy of various kinds. The main purpose held in view is to furnish a scientific preparation for work in the fields of industrial and school hygiene. Course 6, or an equivalent, is required as a preliminary to courses 1, 2, 3 and 4.

1. Physiological Hygiene 1. Credit one major. Drs. Spaeth, Meyer and Clark. This course is offered in the first and third trimesters. It takes up the study of the hygiene of living conditions especially as they are found in the industries and schools. The topics discussed include the effects of muscular and mental work; the standardization of industrial conditions; the physiological effects of variations in temperature, moisture, air movements, etc.; the methods of

artificial illumination and the general physiological action of light and other radiations. In the laboratory exercises those practical methods are given which have been found most useful in the investigation of living and working conditions, such as the various fatigue and intelligence tests, the methods of determining quantitatively the physical and chemical composition of the air, the methods of photometric and visual measurements, etc.

In addition, visits of inspection are made to local schools and factories to study working conditions and systems of lighting and ventilation.

This course is required as a preliminary to courses 2, 3 or 4.

2. Physiological Hygiene 2. Credit one-half major. The Physiology of Work and Fatigue in the Industries. Dr. Spaeth. This is an elective course offered for two afternoons during the first trimester.

3. Physiological Hygiene 3. Credit one-half major. Ventilation and Climatology. Dr. Meyer. This course is an elective given two afternoons in the second trimester. The time will be devoted chiefly to the investigation of problems bearing on the influence of heat, moisture, dust and poisonous gases or vapors upon the body processes. The laboratory exercises will be supplemented by conferences.

4. Physiological Hygiene 4. Credit one-half major. The Physiological Action of Light, X-rays and other radiations. Dr. Clark. This is an elective course offered for two afternoons during the third trimester. The general literature of the subject will be covered in lectures or conferences. The laboratory problems assigned will be adapted to the particular interests of the students, and if desirable a student may devote all his time to a single problem.

5. Personal Hygiene. Dr. Howell. Lectures upon the hygiene of the individual. The different organs of the body are considered with reference to the conditions that influence their functional activity favorably or unfavorably. Once weekly during the third trimester.

6. Animal Physiology. Dr. Wilson. This course is intended primarily for candidates for the degree of Bachelor of Science in Hygiene. It comprises conferences, recitations, and laboratory exercises covering the subject of animal or human physiology as usually given to medical students. Three days weekly during the second trimester, 9 a. m. to 4 p. m.

7. Journal Club. Dr. Howell. A journal club consisting of the instructors and advanced students in the department of physiological hygiene, meets once weekly throughout the year. The object of these meetings is to present and discuss recent experimental work in physiology.

8. Research. Special or advanced students will be assigned problems for investigation under the supervision of members of the staff.

BIOMETRY AND VITAL STATISTICS

Raymond Pearl, Ph. D., Professor.
Lowell J. Reed, Ph. D., Associate Professor.
William T. Howard, M. D., Lecturer.
John R. Miner, Sc. D., Associate.
Sylvia M. Parker, A. B., Associate.
Chester E. Rutherford, Assistant.
Mary Gover, A. M., Assistant.
Agnes L. Bacon, A. B., Volunteer Assistant.

The work of this department is intended to meet the needs of two classes of students: (a) Those training for work in public health; (b) those intending to specialize in statistical work either as teachers, investigators, or administrators.

1. Introduction to Vital Statistics. Statistics 1. Credit one major. Dr. Pearl, Dr. Reed, Dr. Miner, Miss Parker, and Miss Gover. Three mornings per week during the first trimester. The course is designed to acquaint the student, on the one hand, with modern methods of collecting, tabulating, adjusting, and drawing sound conclusions from statistical data regarding human life, and, on the other hand,

with the chief results which have accrued from the study of vital statistics in the past. The course involves a considerable amount of laboratory work, in which the student will gain first-hand familiarity with statistical data and methods in the fields of hygiene and public health. Special emphasis is placed upon modern biometric and graphic methods.

Those wishing to gain more than an elementary knowledge of the subject should elect Course 1 A in the same trimester with Course 1.

1 A. Laboratory Work in Vital Statistics. Statistics 1 A. Credit one-half major. Dr. Reed, Dr. Miner, Miss Parker, and Miss Gover. This course must be taken in connection with Course 1. It provides more adequate laboratory experience in vital statistics than can be got from Course 1 alone.

2. Advanced Statistical Theory. Statistics 2. Credit one major. Dr. Reed and Dr. Miner. Given in the second trimester. This course is intended to meet the needs of those students who desire to continue the study of statistical theory. In the first part of the course, the various methods of graduating statistical data will be developed, special emphasis being placed on the methods of curve fitting. The second part of the course will be devoted to a consideration of the subject of correlation. The laboratory work of the course will include problems in life table construction, in the fitting of frequency curves and in simple and multiple correlation. The course is open only to those who have previously taken Course 1 in Statistics.

2 A. Advanced Statistical Theory. Statistics 2 A. Credit one-half major. Dr. Reed and Dr. Miner. This course provides an opportunity for more extended laboratory work in advanced statistics. It must be taken in connection with Course 2. It is recommended that all students intending to specialize in statistics elect this course.

3. Colloquium on the Application of Statistical Methods to Problems of Medicine and Hygiene. Sta-

TISTICS 3. Dr. Pearl. Given in the first trimester. Open only to those who have already had Courses 1 and 2 in Vital Statistics. The object of the course is, by means of conferences and reports, to train the student in the critical application of the statistical methods he will have acquired in the earlier courses to specific problems in the general field of biology, medicine and hygiene. (One afternoon per week).

4. THE STATISTICAL MEASUREMENT OF THE EFFECTIVENESS OF PUBLIC HEALTH ACTIVITIES. STATISTICS 4. Credit one-half major. Dr. Howard. This course aims to give, by means of lectures and conferences, a historical and critical examination of the actual results of various public health activities. The most suitable statistical methods for the critical measurement of the effectiveness of such activities will be developed.

5. INVESTIGATIONS IN BIOMETRY AND VITAL STATISTICS. Dr. Pearl. In the work of the department special attention will be devoted to research. Properly qualified workers, who may be either candidates for the degree of Doctor of Science in Hygiene or special students, may be taken into the laboratory and either assigned problems in connection with the general co-ordinated plan of investigation being pursued in the department, or aided and directed in the development of their own problems. The general lines along which research may profitably be undertaken in the department are: higher statistical theory, analytical studies on human vital statistics, genetic and other biological factors influencing the duration of life, the study of modern statistical methods of epidemiological problems. (May be elected as a full or half course in any trimester.)

6. ADDITIONAL OPPORTUNITIES. There are certain opportunities for advanced students, resulting from outside connections of the department, apart from the courses offered which require special mention.

Investigations on Tuberculosis. By means of funds furnished from several external sources there is in progress in

the department an intensive investigation of the genetic and environmental factors concerned in the etiology and epidemiology of tuberculosis. The investigation is being prosecuted by the method of intensive field study and pedigree analysis, along the lines which have been so fruitful in the general field of eugenics.

This investigation affords to properly qualified students an opportunity for practical experience and training in eugenic field work, and the analysis of the data from such work.

Hospital Statistics. Students interested in the statistical aspects of the problems of clinical medicine, surgery, and pathology will be afforded an opportunity of undertaking research upon these problems under the direction of Dr. Pearl. All of the extensive collection of case histories in the archives of the Hospital is available for such investigations.

EPIDEMIOLOGY AND PUBLIC HEALTH ADMINISTRATION

Wade H. Frost, M. D., Surgeon U. S. Public Health Service, Professor of Epidemiology.

Allen W. Freeman, M. D., Resident Lecturer in Public Health Administration.

James A. Doull, M. D., Dr. P. H., Associate in Epidemiology.

Richard B. Norment, Jr., M. D., Associate in Public Health Administration.

W. Thurber Fales, S. B., C. P. H., Instructor in Epidemiology.

Epidemiology

1. Epidemiology 1. Credit one major. Dr. Frost, Dr. Doull and Mr. Fales.

This course is designed to give students a view of the mass-phenomena of infectious diseases and the relation of their characteristic epidemiological features to the determining factors of habit and environment; also to afford training in the methods of studying diseases from this angle. Special attention is devoted to the utilization of such systematic

observations as may be made in connection with the work of administrative public health organizations, and as are required for the direction and evaluation of control measures.

The requirements for admission to the course are a knowledge of the basic facts and principles of bacteriology, together with an elementary knowledge of statistical method. Subject to certain exceptions, students will be admitted to this course only after completing the courses in bacteriology and vital statistics which are required in the curriculum.

The course consists of lectures discussing the principles and methods of epidemiological investigation and illustrating their application in selected problems; laboratory work, occupying approximately nine hours a week, in the analysis of crude epidemiological data exemplifying typical problems, and in the presentation of results; conferences for the discussion of topics in connection with lectures and laboratory work, and a course of selected collateral reading.

Three days a week, 9 a. m. to 1 p. m. throughout the second trimester.

2. Epidemiology 2. Credit one-half major. Dr. Frost, Dr. Freeman and Dr. Doull.

The purpose of this course is to give students a more comprehensive knowledge of the recognition, prevalence, modes of transmission and control of infectious diseases. The lectures consider a number of diseases from the standpoint of their history, characteristic epidemiological features, present relative importance as public health problems and status as to control. In addition to lectures, the course will include clinics to the extent that material is available, and assigned reading.

This course is supplementary to the courses in Epidemiology 1, and in Public Health Administration 2, and may be taken to best advantage in connection with them. It is, however, open to students who are not registered in Epidemiology 1.

Three days a week, afternoon hours, in the second trimester.

3. Special Studies. Properly qualified students desiring to undertake advanced work in epidemiology, either as candidates for the Doctor of Science degree, as special students, or as a part of the work for the Doctor of Public Health, will be assigned problems under the direction of the staff of the Department. Through the courtesy of the City Department of Health excellent facilities are afforded for field work in this connection.

Public Health Administration

1. Public Health Organization. Dr. Freeman. Two lectures a week during the first trimester.

This course is designed to give the student a general view of the historical development of health activity as a function of government and of the forms of health organization existing in the United States and in certain foreign countries. It will include a study of the history and present status of the health activity of the federal government, of the growth and development of the health departments of the states, and of the present forms of organization designed to serve cities and rural areas. Collateral reading will be assigned and the reports of typical organizations studied outside the class.

2. Public Health Problems. Dr. Freeman. Four hours a week during the second trimester.

Conferences on the practical application of sanitary science to the problems of the public health. At these conferences the methods of operation of the various types of health organization will be taken up and studied in detail. The large collection of administrative forms and reports possessed by the department will be utilized for discussion and criticism and practical exercises will be given in the preparation of such material. The following topics will be discussed in the course:

1. Public health education and publicity.
2. Maternal and infant welfare work.

3. Medical supervision of the school child.
4. The conduct of public health nursing.
5. Milk and food inspection.
6. Sanitary and housing inspection.
7. The special problems of rural sanitation.
8. The prevention of the communicable diseases of the respiratory tract.
9. The prevention of the communicable diseases of the intestinal tract.
10. The prevention of the acute exanthematous diseases.
11. The prevention of the venereal diseases.
12. The prevention of malaria and yellow fever.
13. The prevention of tuberculosis.
14. The prevention of cancer.
15. The prevention of blindness.
16. The form and content of health reports.

3. Field Demonstrations. Dr. Freeman. Two afternoons a week during the third trimester.

The object of the field demonstrations is to give the student an opportunity to study the operation of actual units of health operation, official and voluntary. Visits will be made to as many of the various forms of activity being carried on in Baltimore and Maryland as time will permit. These will include state and city health departments, tuberculosis sanitoria, hospitals and clinics, maternal and child welfare clinics, schools, communicable disease hospitals, dairies and milk depots, venereal clinics, industrial establishments and the offices of volunteer health agencies, national, state and local.

For the purpose of giving each student a view of the practical operation of a health unit serving a small city and a rural district, students in groups will visit the demonstration unit being conducted at Hagerstown, Maryland, by the Maryland State Health Department in co-operation with the United States Public Health Service, the International Health Board, and the School of Hygiene and Public Health.

During the session 1921-1922 each student was required to spend one week at Hagerstown for this purpose.

Courses 1, 2 and 3 must be taken in sequence and together constitute one major course.

4. Child Hygiene (Elective). Two lectures a week during one trimester.

The course is designed to give the student acquaintance with the historical development of child hygiene work in the United States and in foreign countries and with the present purposes and methods of child hygiene activity. Use will be made of the material afforded by organizations conducting the various phases of child hygiene work in Baltimore and vicinity. Students taking the course will be required to attend field demonstrations of child hygiene activities.

5. Special Studies. Arrangements may be made for a limited number of students possessing the necessary qualifications and interested in special phases of public health administration, to do special work in these subjects under the supervision of the department.

SCHEDULES OF COURSES FOR THE SESSION OF 1922-1923

SCHEDULES OF COURSES

SCHEDULE FOR THE COURSE LEADING TO THE DEGREE OF DOCTOR OF PUBLIC HEALTH

The schedule arranged for candidates for the degree of Doctor of Public Health consists of required and elective courses. To complete the requirements for graduation, credits must be obtained for at least sixteen major courses, a major course being defined as one that requires twelve hours, or approximately twelve hours, a week during one trimester. A number of elective courses are offered which have the value of a whole or of a part of a major course. The following ten courses are required:

One major course in Bacteriology, one in Immunology, one in Epidemiology, one in Statistics, one in Sanitary Engineering, one in Parasitology, one in Physiological Hygiene, one in Chemical Hygiene. The work in Public Health Administration which extends through three trimesters is required and counts as one major course, and certain of the afternoon lectures are also required and are given the value of a major course.

The six additional courses needed may be elected from other major or part major courses offered in the schedule in the mornings or afternoons. Part of a trimester may be reserved for the preparation of a thesis under the direction of a member of the staff, and this work will be given the credit of a major course. When a trimester or part of a trimester can be spent with the County Health Unit, proper credit will be given for the time in accordance with the report of the Director of the Unit. Credit will also be given

for individual work done under the direction of a member of the staff when this work is properly authorized and a satisfactory report is received.

In addition to the sixteen courses done in the School, candidates must submit satisfactory credentials for field work done in the summer or at other times in an organized health service or for work done in a hospital for infectious diseases.

Under ordinary conditions two academic years will be needed to complete the requirements for the degree. Candidates may register at the beginning of any trimester and due credit will be given for work done elsewhere when satisfactory credentials are presented.

The general idea that is held in mind in the arrangement of the schedule is to require all candidates for the degree to complete a certain number of short courses covering the fundamental subjects in public health training and then by offering as wide a selection of electives as possible to enable each candidate to prepare himself as fully as the time and opportunities permit in those special lines in which he may be most interested. In choosing his electives he may select from the scheduled courses or he may do individual advanced work in any one department.

Students taking the combined course in medicine and public health will be required to absolve work equivalent to fourteen major courses in addition to the requirement of a summer in field work or in a hospital for infectious diseases. For students in the Johns Hopkins Medical School it is suggested that credits may be obtained for a major course in Bacteriology and in Immunology or Parasitology in the medical course. During their fourth year their elective trimester may be given to work in the School of Hygiene which will enable them to complete three additional major courses. After graduation in Medicine a year in the School of Hygiene will permit completion of the full requirement of fourteen major courses. Arrangements must be made, however, to

complete the requirement of field work during the intervening summer.

Students from other medical schools must make arrangements during their medical course to obtain credits covering at least five major courses. It is suggested that these credits may be obtained in Bacteriology, one or two courses; Immunology; Parasitology; Chemical Hygiene and Sanitary Engineering. Arrangements should be made also for a summer in field work before registration in the School of Hygiene and Public Health.

First or Fourth Trimester (October 3 to December 23)

Morning Courses, 9 a. m. to 1 p. m.

*Sanitary Engineering	Monday, Wednesday, Friday.
Chemical Hygiene 1	" " "
Physiological Hygiene 1	" " "
Statistics 1	Tuesday, Thursday. Saturday.
Protozoology (Medical Zoology 2).	" " "

Bacteriology 3 (Any three mornings).

Second or Fifth Trimester (January 2 to March 14)

Morning Courses, 9 a. m. to 1 p. m.

Bacteriology 1	Monday, Wednesday, Friday.
Immunology 1	" " "
Statistics 2	" " "
Epidemiology 1	Tuesday, Thursday, Saturday.
Helminthology (Medical Zoology 3).	" " "
Filterable viruses (Medical Zoology 5) and Spirochaetes (Bacteriology 4)	" " "
Chemical Hygiene 2	" " "

Bacteriology 3 (Any three mornings).

Third or Sixth Trimester (March 15 to June 2)

Morning Courses, 9 a. m. to 1 p. m.

Bacteriology 2	Monday, Wednesday, Friday.
Medical Zoology 1	" " "
Immunology 2	" " "
Physiological Hygiene 1	Tuesday, Thursday. Saturday.
Chemical Hygiene 1	" " "
Entomology (Medical Zoology 4)	" " "

Bacteriology 3 (Any three mornings).

---

* Sanitary Engineering, Monday, 11.30 to 4; Wednesday. 8.30 to 12.30; Friday. 8.30 to 12.30.

Afternoon Courses

(First of Fourth Trimester (October 3 to December 23)

Required

Public Health Organization....Wednesday and Friday, 2 to 3
Selected Topics in Hygiene....Wednesday, 4 p. m.
Nutrition and Diet.....Monday, Wednesday, Friday, 2 to 3
De Lamar Public Lectures....Monday, 5 p. m.

Electives

Bacteriology 6.....Tuesday and Thursday, 2 to 5
Statistics 1 A.....Tuesday and Thursday, 2 to 5
Statistics, Conference.....Friday, 3.30 p. m.
Chemical Hygiene 4.....Tuesday and Thursday, 2 to 5
Physiological Hygiene 2.....Tuesday and Thursday, 2 to 5
Immunology 3.....Any afternoon.

Second or Fifth Trimester (January 2 to March 14)

Required

Public Health Problems.....Monday and Wednesday, 2 to 4
Selected Topics in Hygiene....Wednesday, 4.30 p. m.
De Lamar Public Lectures....Monday, 5 p. m.

Electives

Statistics 2 A.....Monday, Wednesday, Friday, 2 to 4
Epidemiology 2.....Tuesday, Thursday, 2-3; Friday, 2-5.
Physiological Hygiene 3.....Tuesday and Thursday, 2 to 5
Immunology 3.....Any afternoon.

Third or Sixth Trimester (March 15 to June 2)

Required

Public Health Administration
—Field Demonstrations.....Monday and Friday, 2 to 5
Personal Hygiene.....Wednesday, 2 to 4
Sanitary Law.....Wednesday, 4.30 p. m.
De Lamar Public Lectures....Monday, 5 p. m.

Electives

Bacteriology 5.....Tuesday and Thursday, 2 to 5
Physiological Hygiene 4.....Tuesday and Thursday, 2 to 5
Mental Hygiene.....Thursday, 4.30; Saturday, 2
Statistics 4.....Tuesday and Thursday, 2 to 4
Public Health Admin. 4.....Tuesday and Thursday, 2 to 3
Immunology 3.....Any afternoon.

Students may select their courses for two years from the schedule above in any combination that they desire, except that in some cases certain sequences must be followed. For example, the course in Epidemiology 1 must be preceded by a course in Statistics 1, and advanced courses in any subject presuppose a preliminary course in the same subject. The following arrangement of courses is suggested as desirable in most cases. Individual work done under direction of a member of the staff may be offered as an elective course.

FIRST YEAR

FIRST TRIMESTER

Mornings	*Afternoons*
Sanitary Engineering Statistics 1	*Lectures* { Public Health Administration Selected Topics in Hygiene
	Elective { One elective from the group offered in this trimester

SECOND TRIMESTER

Bacteriology 1 *or* Immunology 1 Epidemiology 1	*Lectures* { Public Health Administration Selected Topics in Hygiene
	Elective { One elective from the group offered in this trimester

THIRD TRIMESTER

Bacteriology 2 *or* Immunology 2	*Lectures* { Personal Hygiene Sanitary Law
Physiological Hygiene 1 *or* Chemical Hygiene 1	Field Demonstrations
	Elective { One elective from the group offered in this trimester

SECOND YEAR

FIRST TRIMESTER

I For students interested in Parasitic Diseases *Mornings*	II For students not interested in Parasitic Diseases *Mornings*	*Afternoons*
Chemical Hygiene 1 *or* Physiological Hygiene Protozoology	Chemical Hygiene 1 *or* 1 Physiological Hygiene 1 Bacteriology 3	*Lectures* { Selected Topics in Hygiene Nutrition and Diet
		Electives { One or more electives from the group offered in this trimester

SECOND TRIMESTER

Immunology 1 *or* Statistics 2 Helminthology	Immunology 1 *or* Statistics 2 Filterable viruses and Spirochaetes	*Lectures* Selected Topics in Hygien *Electives* { One or more electives from the group offered in this trimester

THIRD TRIMESTER

Thesis preparation Entomology	Parasitology Thesis preparation	*Lectures* *Electives* { One or more electives from the group offered in this trimester

SCHEDULE FOR THE COURSE LEADING TO THE CERTIFICATE IN PUBLIC HEALTH

First Trimester (October 3 to December 23, 1922)

Morning Courses—9 to 1

*Sanitary Engineering.....Monday, Wednesday, Friday.
Statistics 1.....Tuesday, Thursday, Saturday.

Afternoon Courses

Public Health Organization.....Wednesday, Friday, 2 to 3
Selected Topics in Hygiene.....Wednesday, 4 p. m.
De Lamar Lectures.....Monday, 5 p. m.
Statistics 1 A, or other Elective..Tuesday, Thursday, 2 to 5

Second Trimester (January 2 to March 14, 1923)

Morning Courses—9 to 1

Bacteriology 1 *or*
Immunology 1.....Monday, Wednesday, Friday.
Epidemiology .....Tuesday, Thursday, Saturday.

Afternoon Courses

Public Health Problems.....Monday, Wednesday, 2 to 4
Selected Topics in Hygiene.....Wednesday, 4.30 p. m.
De Lamar Lectures.....Monday, 5 p. m.
Epidemiology 2 or other Elective.Tuesday, Thursday, 2 p. m.;
Friday, 2 to 5

Third Trimester (March 15 to June 2, 1923)

Morning Courses—9 to 1

Bacteriology 2, *or* Immunology 2
or Medical Zoology 1.....Monday, Wednesday, Friday.
Physiological Hygiene 1, *or*
Chemical Hygiene 1, *or*
Entomology .....Tuesday, Thursday, Saturday.

Afternoon Courses

Field Demonstrations.....Monday and Friday, 2 to 5
Personal Hygiene.....Wednesday, 2 to 4
Sanitary Law.....Wednesday, 4.30 p. m.
De Lamar Lectures.....Monday, 5 p. m.
Mental Hygiene or other elective

* Sanitary Engineering, Monday, 11.30 to 4; Wednesday, 8.30 to 12.30; Friday, 8.30 to 12.30.

SCHEDULE FOR THE COURSE LEADING TO THE DEGREE OF BACHELOR OF SCIENCE

First Trimester (October 3 to December 23, 1922)

Laboratory Courses:

Anatomy ..... Monday, Wednesday, Friday, 9 to 4.
Histology ..... Tuesday, Thursday, 9 to 4.

Afternoon Lectures:

De Lamar Lectures..... Monday, 5 p. m.

Second Trimester (January 2 to March 14, 1923)

Laboratory Courses:

Bacteriology 1..... Monday, Wednesday, Friday, 9 to 1.
Physiology ..... Tuesday, Thursday, Saturday, 9 to 4.

Afternoon Courses:

De Lamar Lectures..... Monday, 5 p. m.

Third Trimester (March 15 to June 2, 1923)

Laboratory Courses:

Bacteriology 2..... Monday, Wednesday, Friday, 9 to 1.
Physiological Hygiene 1.... Tuesday, Thursday, Saturday, 9 to 1.

Afternoon Lectures:

De Lamar Lectures..... Monday, 5 p. m.
Personal Hygiene..... Wednesday, 2 to 4 p. m.

Fourth Trimester

Laboratory Courses:

Chemical Hygiene 1..... Monday, Wednesday, Friday, 9 to 1.
Statistics 1, *or*
Bacteriology 3..... Tuesday, Thursday, Saturday, 9 to 1.

Afternoon Courses:

De Lamar Lectures..... Monday, 5 p. m.
Selected Topics in Hygiene.. Wednesday, 4 p. m.
Nutrition and Diet..... Monday, Wednesday, Friday, 2 to 3.

Fifth Trimester

Laboratory Courses:

Immunology 1.....Monday, Wednesday, Friday, 9 to 1.
Chemical Hygiene 2 *or*
Spirochaetes and
Filterable viruses.....Tuesday, Thursday, Saturday, 9 to 1.

Afternoon Courses:

De Lamar Lectures.....Monday, 5 p. m.
Selected Topics in Hygiene..Wednesday, 4.30 p. m.

Sixth Trimester

Laboratory Courses:

Medical Zoology 1..... Monday, Wednesday, Friday, 9 to 1.
Pathology .....Tuesday, Thursday, 9 to 4.

Afternoon Courses:

De Lamar Lectures.....Monday, 5 p. m.
Sanitary Law.....Wednesday, 4.30 p. m.

INTENSIVE COURSE FOR PUBLIC HEALTH OFFICERS

The daily schedule arranged for this course during the session of 1921-19 November 14 to December 21, was as follows:

November	9–1	2–4	4–5 Lecture	5–6
Mon. 14,	Registration	Registration	Introductory Dr. Welch	De Lam Lectu
Tue. 15,	Bacteriology	Organization for Field Work	Dr. Freeman	Col. McCarris
Wed. 16,	Vital Statistics	Field Work	Dr. Welch	
Thu. 17,	Bacteriology	Field Work	Dr. Howell	
Fri. 18,	Vital Statistics	Field Work	Dr. Howell	
Sat. 19,	Bacteriology			
Mon. 21,	Vital Statistics	Epidemiology 2–5		
Tue. 22,	Bacteriology	Field Work	Dr. Freeman	
Wed. 23,	Vital Statistics	Field Work	Dr. Welch	
Thu. 24,	Thanksgiving Day—	No Classes		
Fri. 25,	Vital Statistics	Field Work	Dr. Bull	
Sat. 26,	Bacteriology			
Mon. 28,	Immunology	Epidemiology 2–5		De Lam Lectu
Tue. 29,	Bacteriology	Field Work	Dr. J. S. Fulton	Dr. Bak
Wed. 30,	Immunology	Field Work	Dr. Welch	
December				
Thu. 1,	Bacteriology	Epidemiology 2–5	Dr. McCollum	
Fri. 2,	Food and Nutrition	Field Work	Dr. McCollum	
Sat. 3,	Bacteriology			
Mon. 5,	Food and Nutrition	Conference, City Administration, Dr. Jones		
Tue. 6,	Bacteriology	Epidemiology	Dr. Freeman	
Wed. 7,	Food and Nutrition	Field Work	Dr. Welch	
Thu. 8,	Bacteriology	Epidemiology		
Fri. 9,	Medical Zoology	Field Work	Dr. McCollum	
Sat. 10,	Sanitary Engineer'g			
Mon. 12,	Medical Zoology	Epidemiology 2–5		De Lam Lectu
Tue. 13,	Sanitary Engineer'g	Sanitary Engineer'g	Dr. Freeman	Dr. Leath
Wed. 14,	Medical Zoology	Rural Administr'n, Dr. Freeman	Dr. Welch	
Thu. 15,	Sanitary Engineer'g	Sanitary Engineer'g	Dr. McCollum	
Fri. 16,	Medical Zoology	School Hygiene, Dr. Buckler	Dr. McCollum	
Sat. 17,	Physiology			
Mon. 19,	Medical Zoology	Epidemiology 2–5		De Lan Lectu
Tue. 20,	Physiology	City Administr'n, Dr. Freeman	Dr. Freeman	Dr. Lev
Wed. 21,	Medical Zoology	Child Hygiene, Dr. Williams	Dr. Welch	

DEGREES CONFERRED, 1919-1922

DEGREES CONFERRED, 1919-1922

Doctors of Public Health

1919

Ferrell, John Atkinson—S. B. and M. D. North Carolina 1902 and 1907 — Director for the United States of the International Health Board, New York. (61 Broadway).

1920

Souza, Geraldo Horacio de Paula — Pharm. D. São Paulo School of Pharmacy 1908; M. D. Rio Janeiro 1913—Assoc. Prof. Hygiene, Faculdade de Medicina, São Paulo, Brazil.

Vieira, Francisco Borges — B. Sc. e Lett. São Paulo Gym. 1911; M. D. Rio Janeiro 1917—Assistant in Hygiene, Faculdade de Medicina, São Paulo, Brazil.

1921

Atwater, Reginald Myers—A. B. Colorado Coll. 1914; M. D. Harvard 1918; C. P. H. Johns Hopkins University, 1920—Hunan-Yale Med. Sch. Changsha, China.

Bailey, Garland Howard—S. B. West Va. 1915; M. D. Johns Hopkins University, 1920—Instr. Pathol. and Bacteriol. Univ. of Wisconsin, Madison.

Brown, Orville Graham—M. D. Columbia 1900; Lieut.-Col. Med. Corps, U. S. A.; Chief of Section Hygiene and Sanitation, Infantry Officers Sch. Camp Benning, Ga.

Doull, James Angus—A. B. Dalhousie 1911, M. D. C. M. 1914; D. P. H. Cambridge 1919—Assoc. Epidemiol. J. H. U.

Dunham, George Clark—M. D. Oregon 1914—Major, Med. Corps, U. S. A., Surgeon General's Office, Washington.

Ellicott, Valcoulon LeMoyne — S. B. Mass. Inst. Tech. 1916; M. D. Johns Hopkins University 1920 — Interne, Willard Parker Hospital, New York.

Lim, Chong Eang—M. B. and S. M. Hong Kong Univ. 1916; D. T. M. Liverpool Sch. of Trop. Med. 1921—Volunteer Asst. Immunol. J. H. U.

Maxcy, Kenneth Fuller—A. B. George Washington 1911; M. D. Johns Hopkins University 1915—Asst. Surg. U. S. P. H. S. Memphis, Tenn.

Nauss, Ralph Welty—S. B. Ohio State 1901; M. D. Northwestern 1905; D. P. H. Univ. of Pa. 1916; Asst. Epidemiologist, State Dept. of Health, Springfield, Ill.

Oldt, Frank — A. B. Otterbein 1901; M. D. Ohio Med. 1905—Med. Missionary, United Brethren Mission, Sin Lam near Canton, China.

Padua y Gaerlan, Regina—M. D. Univ. of Philippines 1915, D. T. M. 1918—Philippine Health Service, Manila.

Szymanski, John Joseph — A. B. St. John's (Brooklyn) 1910; M. D. Johns Hopkins University 1914 — Physician and Public Health Work, Passaic, N. J.

Whitmore, Eugene Rudolph—S. B. Wisconsin 1896; M. D. Illinois 1899; Lieut. Col. U. S. A. Retired—Prof. Bacteriol. Clin. Micros. and Preventive Med. George Washington Univ.

Williams, George Huntington — A. B. Harvard 1915; M. D. Johns Hopkins University 1919—Sanitary Supervisor, State Dept. of Health, Albany, N. Y.

1922 (February 22)

Abriol, Rufino — M. D. Illinois 1913; D. T. M. Univ. of Philippines 1916; C. P. H. Johns Hopkins University 1921; U. S. P. H. S. (Quarantine), Manila.

Meehan, John William—A. B. and A. M. St. Mary's (Kans.) 1904 and 1906; M. D. Creighton 1908—Major, Med. Corps, U. S. A.; Sanitary Inspector, Seventh Training Area, Fort Snelling, Minn.

Doctors of Science in Hygiene

1920

Salter, Raymond Cleveland—S. B. Wisconsin 1915; S. M. Iowa State 1918——Bacteriologist, Md. State Dept. of Health; Inst. Bacteriol. J. H. U.—(*Bacteriology*)

1921

Smith, Homer William—A. B. Denver 1917—Research Chemist, Eli Lilly Co. Indianapolis—(*Physiology*)

1922 (February 22)

Miner, John Rice—A. B. Mich. 1913—Assoc. Biometry and Vital Statistics J. H. U.—(*Statistics*)

Certificates in Public Health

1920

Anderson, Charles Magee—M. D. C. M. McGill 1916—Bacteriologist, Provincial Board of Health, Toronto, Can.

Atwater, Reginald Myers—A. B. Colorado Coll. 1914; M. D. Harvard 1918—Hunan-Yale Med. Sch., Changsha, China.

Bernard, Zdenek—M. D. Prague 1914—Health Officer, Ostrava; Czechoslovakia.

Cornelius, James Thambidurai—A. M. and M. D. Cincinnati 1919—Assistant Professor of Hygiene, Provincial Hygiene Institute, Lucknow, India.

Driml, Karel—M. D. Prague 1914—Secretary, Ministry of Public Health and Physical Education, Prague, Czechoslovakia.

1921

Abriol, Rufino—M. D. Illinois 1913; D. T. M. Univ. of Philippines 1916—U. S. P. H. S. (Quarantine), Manila.

Grant, John Black—A. B. Acadia 1912; M. D. Mich. 1917—Member Staff, Internat. Health Bd., Assoc. Prof. Public Health and Hygiene, Peking Union Med. Coll. China.

Leach, Charles Nelson—A. B. Stanford 1909, M. D. 1913—Senior Field Director, Internat. Health Bd. Manila.

Newman, Gladys—A. B. Oberlin 1917—Teaching in High School, Buffalo, N. Y. (1568 Delaware Av.)

Pedley, Frank Gordon—A. B. McGill 1913, M. D. C. M. 1916—Epidemiologist, State Bd. of Health, Topeka, Kans.

Rivas Vides, Ricardo—S. B. El Salvador Inst. 1906; M. D. El Salvador Univ. 1916.

Bachelors of Science in Hygiene

1920

Barrett, Edith Margaret Jane—Bacteriologist, Tennessee Dairies, Dallas, Tex.

1921

Cox, Charles Raymond—Sanitary Eng., Internat. Health Bd., Memphis, Tenn.

Goodwin, Winifred Anderson—A. B. Mich. 1914—Laboratory Technician, Highland Park Hospital, Mich.

Koch, Marie Louise—Junior Physiologist, Chem. Warfare Service, U. S. A. Edgewood, Md.

Shelling, David Henry—Med. Student, Yale University.

INDEX

INDEX OF NAMES

	PAGE
Abadia, G.	21
Abriol, R.	17, 18, 82
Anderson, C. M.	81
Atwater, R. M.	81, 82
Augustine, D. L.	14, 18, 51, 52
Bacon, A. L.	13
Baetjer, A. M.	18
Bailey, C. E.	18
Bailey, G. H.	81
Baker, N. D.	6
Baker, S. J.	37, 78
Barcroft, J.	38
Barreto, A. L. B.	15, 17
Barrett, E. M. J.	82
Barrier, A. F.	24
Baudouin, J. A.	15, 21
Becker, E. R.	14, 18, 51, 53
Becker, J. E.	14, 21, 49
Bedell, A. S.	23
Ben Harel, S.	18
Bernard, Z.	82
Best, A. E.	21
Bliss, E. A.	18
Boyce, W. G.	6
Boyd, M. F.	23
Brown, O. G.	81
Bull, C. G.	9, 26, 47, 48
Bullen, I. E.	24
Castro, A.	15, 20
Celerek, J.	15, 21
Chapman, M. J.	18
Clark, J. H.	11, 57, 58
Clarke, J. L.	22
Cleveland, L. R.	15, 18
Collinson, J.	17
Cornelius, J. T.	82
Cort, E. C.	21
Cort, W. W.	9, 51, 52, 53, 55
Cox, C. R.	23, 82
Coughlin, F. E.	17
Craig, E. M., Jr.	23
Cromwell, H. W.	15, 18
Damon, S. R.	13, 45
Darling, S. T.	14
Dean, A. S.	17
Dershimer, F. W.	20
Docherty, J. F.	23
Doering, C. R.	17
Doull, J. A.	12, 62, 63, 81
Dowell, A. S.	24
Drbohlav, J. J.	15, 21
Driml, K.	82
Dumont, W. H.	23
Dunham, G. C.	81
Durham, M. L.	26
East, E. M.	38
Eichel, O. R.	38
Ellicott, V. L.	81
Elvers, C. F.	21
Enciso-Ruiz, E.	15, 17
Erb, N. McL.	21
Fales, W. T.	13, 18, 62
Feirabend, B.	21
Fernando, J. S.	22
Ferrell, J. A.	81
Ford, W. W.	8, 26, 45, 47
Fountain, T.	24
Fraga, A.	16, 21
France, M. v. T.	20
Freeman, A. W.,	8, 26, 40, 62, 63, 64, 78
Frobisher, M., Jr.	21
Frost, W. H.	8, 26, 62, 63
Fulton, J. S.	9, 78
Gaitan, L.	16, 22
Garzon-Cossa, G.	21
Gichner, M. G.	21
Glenn, J., Jr.	6
Gonzales, B. M.	18
Goodison, W. L. T.	20
Goodnow, F. J.	7, 26
Goodwin, W. A.	82
Gover, M.	14, 19, 59, 60
Grant, J. B.	82
Gregory, J. H.	8, 26, 49
Griswold, B. H., Jr.	6
Guerrero, J.	16, 20
Hakin, R. M.	22
Harlan, H. D.	6
Havens, L. C.	11, 47, 48
Heaps, P.	24
Hegner, R. W.	9, 26, 51, 52, 55
Hill, J. H.	23
Hille, M. J.	24
Hoffman, W. A.	14, 19, 51, 54
Hoffstadt, R. E.	19
Holmes, F. O.	19
Hons, V.	16, 22
Houghtaling, F. M.	23
Howard, C. H.	24
Howard, W. T.	9, 59, 61
Howell, W. H.,	7, 26, 30, 57, 58, 59, 78
Hunter, A. S.	24
Huntington, E.	38
Hyde, R. R.	11, 47
Ilsley, M. L.	17
Johnson, H. A.	23
Jones, C. H.	10
Jordan, E. O.	38
Joseph, R. C.	24
Keyser, R. B.	6
Kinney, E. M.	13, 19, 49
Kirk, A. A.	23
Kleeberger, F. L.	15, 19
Knights, E. M.	23
Knipmeyer, W. W.	20
Knott, A. D.	17
Koch, M. L.	82
Kratsch, H. A. L.	24
Lambrichts, G.	20
Lange, L. B.	12, 45

	PAGE
Langwill, B.	19
Larde, C. R. ..16,	17
Leach, C. N.	82
Leathers, W. S.37,	78
Le Blanc, T. J.16,	20
Lee, R. I.	38
Lenert, L. G.	23
Levering, E.	6
Levine, V. E.	19
Lewis, P. A.38,	78
Lim, C. E.14, 47,	81
Lisk, H.15,	19
Livingston, M.	24
Lotka, A. J.	14
Lotsy, J. P.	38
McCarrison, R.37,	78
McCollum, E. V..7, 26, 49, 50, 51,	78
McCoy, G. W.	38
McDowell, C.	19
McLean, C. E.	22
MacDonald, M. B.....12, 49, 50,	51
Macgowan, B.	22
Magoon, E. H.	23
Marburg, T.	6
Martin, W. C.	17
Masek, J.16,	20
Maxcy, K. F.	81
Meader, P. D.12, 45,	46
Meehan, J. W.17,	81
Meyer, A. L.11, 57,	58
Mildazis, J. J.	23
Miner, J. R.10, 19, 59, 60,	82
Mori, S.	22
Nauss, R. W.	81
Newman, G.	82
Nicolls, E. E.	19
Norment, R. B., Jr.12,	62
Norris, E.	26
Old, L. E.	22
Oldt, F.	81
Padua-Gaerlan, R.	81
Parker, S. L.12, 59,	60
Passmore, J.	22
Pearl, R.8, 26, 59,	61
Pedley, F. G.	82
Pirquet, C.	38
Pitlik, S.15,	19
Pleasants, J. H.	6
Powell, H. M.	19
Pritchett, I. W.13, 19, 47,	48
Prommas, C.	17
Randall, B.	6
Randall, W. W.12,	49
Ransom, B. H.	38
Rector, N. H.	24
Reed, L. J.9, 26, 59,	60
Reynolds, B. D.15,	19
Rice, E. G.	24
Riegel, M.	24
Riley, C. V.	18
Riley, R. H.	17
Rivas-Vides, R.	82
Robbins, G. E.	23
Robinson, G. H.10, 26, 45,	46
Robleto, F.16,	22
Root, F. M.11, 51, 52, 54,	55
Rose, W.	30
Rosedale, J. L.	22
Rumreich, A. S.15,	18
Rutherford, C. E.13,	59
Salter, R. C.13, 45, 46, 47,	82
Schapiro, L.	18
Schereschewsky, J. W.	37
Schnepfe, C. D.	24
Schubert, O.16,	22
Shamburger, A. C.	24
Shaw, E. H., Jr.	24
Shelling, D. H.	82
Shipp, C. M.	23
Simmonds, N.11, 49,	50
Simon, C. E..10, 41, 51, 52, 53, 54,	55
Slanina, O.16,	20
Smith, B.	24
Smith, H. W.	82
Smith, M. C.	24
Smith, O. C.	21
Snow, W. F.	10
Snyder, J. C.	21
Souza, G. H. de P.	81
Spaeth, R. A.10, 26, 57,	58
Spielman, C. M.	24
Stoll, N. R.15,	20
Sweeney, J. S.16,	18
Swenarton, J. C.	20
Sydenstricker, E.	20
Szymanski, J. J.	81
Talbott, H.	24
Taliaferro, W. H.11, 51, 52,	55
Tao, W. S.	20
Taylor, H. A.	24
Thies, E. S.	26
Tiedeman, W. v. D.	24
Ting, G. C.	20
Tonkin, A. B.	23
Totten, E.	24
Urbanek, K.16,	22
Van Winkle, C. C.	18
Vieira, F. B.	81
Wada, T.	24
Wang, G. H.	24
Welch, W. H....7, 26, 29, 30, 41,	78
Weston, W.	24
White, M., Jr.	6
Whitmore, E. R.	81
Wild, E. L.	24
Willard, D.	6
Wilson, D. B.	24
Wilson, H. C.13, 57,	59
Winchester, M.	22
Wolman, A.14,	49
Wood, F. W.	6
Wroczynski, C.16,	20
Yang, T. S.	24

INDEX

	PAGE
Admission, Requirements for..... 31, 32, 34, 35,	36
Advisory Board of the Faculty...	26
American Journal of Hygiene....	41
Applications, Committee on.....	26
Artist	26
Assistant Director.....7, 26,	30
Assistants	13
Associates	10
Associate Professors.....	8
Announcement of Courses, Departments of Instruction and,	
Bacteriology	45
Biometry and Vital Statistics,	59
Chemical Hygiene.....	49
Epidemiology	62
General Hygiene.....	39
Health Officers, Intensive.....	35
Immunology	47
Medical Zoology.....	51
Medical Zoology, Intensive....	36
Physiological Hygiene.....	57
Public Health Administration,	64
Sanitary Engineering.....	49
Special Students.....	36
Bachelor of Science in Hygiene, Candidates for degree of...	20
Course leading to degree of..	34
Schedule for course.....	76
Bacteriology, Course in.....	45
Biometry and Vital Statistics, Course in.....	59
Board of Trustees.....	6
Advisory, of the Faculty.....	26
Calendar	5
Registration and.....	41
Candidates for Bachelor of Science in Hygiene.....	20
Certificate in Public Health..	20
Doctor of Public Health.....	17
Doctor of Science in Hygiene,	18
Certificate in Public Health, Course leading to.....	34
Chemical Hygiene, Course in.....	49
Collected Papers.....	41
Committee, Executive.....	26
Library	26
On Applications.....	26
On Publications.....	26

	PAGE
Contents	3
County Health Unit.....31,	65
Courses,	
Bachelor of Science in Hygiene	34
Certificate in Public Health..	34
Doctor of Public Health....	31
Doctor of Science in Hygiene,	32
General Hygiene.....	39
Intensive for Health Officers..	35
Intensive in Medical Zoology..	36
Schedules of..69, 72, 74, 75, 76,	78
Special Students.....	36
Degrees, Candidates for	
Bachelor of Science in Hygiene	20
Doctor of Public Health.....	17
Doctor of Science in Hygiene,	18
De Lamar Lectures in Hygiene...	37
Departments of Instruction and Announcement of Courses,	
Bacteriology	45
Biometry and Vital Statistics,	59
Chemical Hygiene.....	49
Epidemiology	62
General Hygiene.....	39
Health Officers Intensive.....	35
Immunology	47
Medical Zoology.....	51
Medical Zoology, Intensive...	36
Physiological Hygiene.....	57
Public Health Administration,	64
Sanitary Engineering.....	49
Special Students.....	36
Director 6, 30, 40, 41,	42
Assistant 7, 26,	30
Doctor of Public Health,	
Candidates for degree of....	17
Course leading to degree of..	31
Schedule for course.....	69
Doctor of Science in Hygiene, Candidates for degree of.....	18
Course leading to degree of..	32
Epidemiology, Course in.....	62
Executive Committee.....	26
Faculty	7
Advisory Board of the.....	26
Fellows	15

	PAGE
Fellows,	
By Courtesy	14
International Health Board	15
Rockefeller Foundation	15
Fellowships	40
General Statement	29
Health Officers, Intensive Course for,	35
Health Unit, County	31, 65
Hygiene, American Journal of	41
Hygiene, Course in General	39
Immunology, Course in	47
Instruction and Announcement of Courses, Departments of,	
Bacteriology	45
Biometry and Vital Statistics,	59
Chemical Hygiene	49
Epidemiology	62
General Hygiene	39
Health Officers, Intensive	35
Immunology	47
Medical Zoology	51
Medical Zoology, Intensive	36
Physiological Hygiene	57
Public Health Administration,	64
Sanitary Engineering	49
Special Students	36
Instructors	12
Intensive Course in Medical Zoology	36
Intensive Course for Public Health Officers	35
International Health Board	31, 65
International Health Board Fellows,	15
Lecturers	9
De Lamar	37
Lectures, De Lamar	37
General Hygiene	39
Library Committee	26
Librarian	26
Medical Zoology, Course in	51
Intensive Course in	36
Physiological Hygiene, Course in	57
Officers	26
President of the University	6, 7, 26
Professors	7
Associate	8

	PAGE
Public Health,	
Course leading to Certificate in.	34
Public Health Administraton,	
Course in	64
Public Health Officers,	
Intensive Course for	35
Public Lectures	37
Publications	41
Committee on	26
Requirements for Admission	31, 32, 34, 35, 36
Registration and Calendar	41
Rockefeller Foundation	29
Rockefeller Foundation Fellows	15
Sanitary Engineering, Course in	49
Schedules of Courses,	
Bachelor of Science in Hygiene	76
Certificate in Public Health	75
Doctor of Public Health	69
Intensive Course for Health Officers	78
Scholarships	40
Secretary	26
Special Students, Courses for	36
List of	21
State Department of Health, Maryland	31, 65
Statement, General	29
Statistics, Course in Biometry and Vital	59
Students, 1921-1922	17
Special	21
Intensive course	22, 23
Summary of Students	25
Treasurer of the University	6
Trustees, Board of	6
Tuition	42
University, President of	7
Treasurer of	6
Trustees of	6
Zoology, Course in Medical	51
Intensive Course in Medical	36
U. S. Public Health Service	31, 65

New Series, 1923
No. 3

Whole Number 344

THE LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

THE

JOHNS HOPKINS

UNIVERSITY CIRCULAR

SCHOOL OF HYGIENE AND PUBLIC HEALTH

CATALOGUE AND ANNOUNCEMENT FOR 1923-1924

BALTIMORE, MARYLAND
PUBLISHED BY THE UNIVERSITY
ISSUED JANUARY, MARCH, APRIL, JUNE, JULY, OCTOBER, NOVEMBER

APRIL, 1923

Entered, October 21, 1903, at Baltimore, Md., as second-class matter, under Act of Congress of July 16, 1894

Acceptance for mailing at special rate of postage provided for in Section 1103, Act of October 3, 1917. Authorized on July 3, 1918

UNIVERSITY OF ILLINOIS-URBANA
3 0112 111992100